Service Manual

Lexmark Optra™ C

5045-001

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Preface

This manual is divided into the following chapters:

- "**General Information**" contains a general description of the printer and the maintenance approach used to repair it. Special tools, test equipment, and options are listed.
- "**Diagnostic Information**" contains error code table, symptom table, and service checks used to isolate failing field replaceable units (FRUs).
- "**Diagnostic Aids**" contains tests and checks used to locate or repeat symptoms of printer problems.
- "**Repair Information**" provides instructions for making printer adjustments and removing and installing FRUs.
- "**Connector Locations**" uses illustrations to identify the major components and test points on the printer.
- "**Preventive Maintenance**" contains safety inspection guidelines, lubrication specifications, and maintenance information to prevent problems and maintain optimum performance.
- "**Parts Catalog**" contains illustrations and part numbers for individual FRUs.

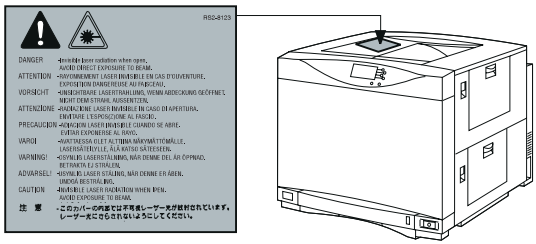
Notices and Safety Information

References in this publication to products, programs, or services do not imply that the manufacturer intends to make these available in all countries in which it operates. Any reference to a product, program, or service is not intended to state or imply that only that product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any existing intellectual property rights may be used instead. Evaluation and verification of operation in conjunction with other products, programs, or services, except those expressly designated by the manufacturer, are the user's responsibility.

Laser Notice

The printer is certified in the U.S. to conform to the requirements of DHHS 21 CFR Subchapter J for Class I (1) laser products, and elsewhere is certified as a Class I laser product conforming to the requirements of IEC 825.

Class I laser products are not considered to be hazardous. The printer contains internally a Class IIIb (3b) laser that is nominally a 5 milliwatt gallium arsenide laser operating in the wavelength region of 770-795 nanometers. The laser system and printer are designed so there is never any human access to laser radiation above a Class I level during normal operation, user maintenance, or prescribed service condition.


RSG-8123
DANGER - Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.
ATTENTION - RAYONNEMENT LASER INVISIBLE EN CAS D'OUVERTURE. EXPOSITION DANGEREUSE AU FAISCEAU.
VORSICHT - UNSICHTBARE LASERSTRAHLUNG, WENN ABDECKUNG GEÖFFNET. NICHT DEM STRAHL AUSSETZEN.
ATTENZIONE - RADIAZIONE LASER INVISIBILE IN CASO DI APERTURA. EVITARE L'ESPOSIZIONE AL FASCIO.
PRECAUCION - RADIACION LASER INVISIBLE CUANDO SE ABRE. EVITAR EXPONERSE AL RAYO.
VARO! - AVATTAESSA OLET ALTTIINA NÄKYMÄTTÖMÄLLE. LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VARNING! - OSYNLIG LASERSTRÅLNING, NÄR DENNE DEL ÄR ÖPPNAD. BETRAKTA EJ STRÅLEN.
ADVARSEL! - USYNLIG LASER STRÅLING, NÅR DENNE ER ÅBEN. UNDGÅ BESTRÅLING.
CAUTION - INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
注 意 - このカバーの内部では不可視レーザー光が放射されています。レーザー光にさらされないようにしてください。

Laser

Der Drucker erfüllt gemäß amtlicher Bestätigung der USA die Anforderungen der Bestimmung DHHS (Department of Health and Human Services) 21 CFR Teil J für Laserprodukte der Klasse I (1). In anderen Ländern gilt der Drucker als Laserprodukt der Klasse I, der die Anforderungen der IEC (International Electrotechnical Commission) 825 gemäß amtlicher Bestätigung erfüllt.

Laserprodukte der Klasse I gelten als unschädlich. Im Inneren des Druckers befindet sich ein Laser der Klasse IIIb (3b), bei dem es sich um einen Galliumarsenlaser mit 5 Milliwatt handelt, der Wellen der Länge 770-795 Nanometer ausstrahlt. Das Lasersystem und der Drucker sind so konzipiert, daß im Normalbetrieb, bei der Wartung durch den Benutzer oder bei ordnungsgemäßer Wartung durch den Kundendienst Laserbestrahlung, die die Klasse I übersteigen würde, Menschen keinesfalls erreicht.

Avis relatif à l’utilisation de laser

Pour les Etats-Unis : cette imprimante est certifiée conforme aux provisions DHHS 21 CFR alinéa J concernant les produits laser de Classe I (1). Pour les autres pays : cette imprimante répond aux normes IEC 825 relatives aux produits laser de Classe I.

Les produits laser de Classe I sont considérés comme des produits non dangereux. Cette imprimante est équipée d’un laser de Classe IIIb (3b) (arséniure de gallium d’une puissance nominale de 5 milliwatts) émettant sur des longueurs d’onde comprises entre 770 et 795 nanomètres. L’imprimante et son système laser sont conçus pour impossible, dans des conditions normales d’utilisation, d’entretien par l’utilisateur ou de révision, l’exposition à des rayonnements laser supérieurs à des rayonnements de Classe I .

Avvertenze sui prodotti laser

Questa stampante è certificata negli Stati Uniti per essere conforme ai requisiti del DHHS 21 CFR Sottocapitolo J per i prodotti laser di classe 1 ed è certificata negli altri Paesi come prodotto laser di classe 1 conforme ai requisiti della norma CEI 825.

I prodotti laser di classe non sono considerati pericolosi. La stampante contiene al suo interno un laser di classe IIIb (3b) all'arseniuro di gallio della potenza di 5mW che opera sulla lunghezza d'onda compresa tra 770 e 795 nanometri. Il sistema laser e la stampante sono stati progettati in modo tale che le persone a contatto con la stampante, durante il normale funzionamento, le operazioni di servizio o quelle di assistenza tecnica, non ricevano radiazioni laser superiori al livello della classe 1.

Avisos sobre el láser

Se certifica que, en los EE.UU., esta impresora cumple los requisitos para los productos láser de Clase I (1) establecidos en el subcapítulo J de la norma CFR 21 del DHHS (Departamento de Sanidad y Servicios) y, en los demás países, reúne todas las condiciones expuestas en la norma IEC 825 para productos láser de Clase I (1).

Los productos láser de Clase I no se consideran peligrosos. La impresora contiene en su interior un láser de Clase IIIb (3b) de arseniuro de galio de funcionamiento nominal a 5 milivatios en una longitud de onda de 770 a 795 nanómetros. El sistema láser y la impresora están diseñados de forma que ninguna persona pueda verse afectada por ningún tipo de radiación láser superior al nivel de la Clase I durante su uso normal, el mantenimiento realizado por el usuario o cualquier otra situación de servicio técnico.

Declaração sobre Laser

A impressora está certificada nos E.U.A. em conformidade com os requisitos da regulamentação DHHS 21 CFR Subcapítulo J para a Classe I (1) de produtos laser. Em outros locais, está certificada como um produto laser da Classe I, em conformidade com os requisitos da norma IEC 825.

Os produtos laser da Classe I não são considerados perigosos. Internamente, a impressora contém um produto laser da Classe IIIb (3b), designado laser de arseneto de potássio, de 5 milliwatts ,operando numa faixa de comprimento de onda entre 770 e 795 nanómetros. O sistema e a impressora laser foram concebidos de forma a nunca existir qualquer possiblidade de acesso humano a radiação laser superior a um nível de Classe I durante a operação normal, a manutenção feita pelo utilizador ou condições de assistência prescritas.

Laserinformatie

De printer voldoet aan de eisen die gesteld worden aan een laserprodukt van klasse I. Voor de Verenigde Staten zijn deze eisen vastgelegd in DHHS 21 CFR Subchapter J, voor andere landen in IEC 825.

Laserprodukten van klasse I worden niet als ongevaarlijk aangemerkt. De printer is voorzien van een laser van klasse IIIb (3b), dat wil zeggen een gallium arsenide-laser van 5 milliwatt met een golflengte van 770-795 nanometer. Het lasergedeelte en de printer zijn zo ontworpen dat bij normaal gebruik, bij onderhoud of reparatie conform de voorschriften, nooit blootstelling mogelijk is aan laserstraling boven een niveau zoals voorgeschreven is voor klasse 1.

Lasermeddelelse

Printeren er godkendt som et Klasse I-laserprodukt, i overenstemmelse med kravene i IEC 825.

Klasse I-laserprodukter betragtes ikke som farlige. Printeren indeholder internt en Klasse IIIB (3b)-laser, der nominelt er en 5 milliwatt galliumarsenid laser, som arbejder på bølgelængdeområdet 770-795 nanometer. Lasersystemet og printeren er udformet således, at mennesker aldrig udsættes for en laserstråling over Klasse I-niveau ved normal drift, brugervedligeholdelse eller obligatoriske servicebetingelser.

Huomautus laserlaitteesta

Tämä kirjoitin on Yhdysvalloissa luokan I (1) laserlaitteiden DHHS 21 CFR Subchapter J -määrityksen mukainen ja muualla luokan I laserlaitteiden IEC 825 -määrityksen mukainen.

Luokan I laserlaitteiden ei katsota olevan vaarallisia käyttäjälle. Kirjoittimessa on sisäinen luokan IIIb (3b) 5 milliwatin galliumarsenidilaser, joka toimii aaltoalueella 770 - 795 nanometriä. Laserjärjestelmä ja kirjoitin on suunniteltu siten, että käyttäjä ei altistu luokan I määrityksiä voimakkaammalle säteilylle kirjoittimen normaalin toiminnan, käyttäjän tekemien huoltotoimien tai muiden huoltotoimien yhteydessä.

VARO! Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

VARNING! Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

Laser-notis

Denna skrivare är i USA certifierad att motsvara kraven i DHHS 21 CFR, underparagraf J för laserprodukter av Klass I (1). I andra länder uppfyller skrivaren kraven för laserprodukter av Klass I enligt kraven i IEC 825.

Laserprodukter i Klass I anses ej hälsovådliga. Skrivaren har en inbyggd laser av Klass IIIb (3b) som består av en laserenhet av gallium-arsenid på 5 milliwatt som arbetar i våglängdsområdet 770-795 nanometer. Lasersystemet och skrivaren är utformade så att det aldrig finns risk för att någon person utsätts för laserstrålning över Klass I-nivå vid normal användning, underhåll som utförs av användaren eller annan föreskriven serviceåtgärd.

Laser-melding

Skriveren er godkjent i USA etter kravene i DHHS 21 CFR, underkapittel J, for klasse I (1) laserprodukter, og er i andre land godkjent som et Klasse I-laserprodukt i samsvar med kravene i IEC 825.

Klasse I-laserprodukter er ikke å betrakte som farlige. Skriveren inneholder internt en klasse IIIb (3b)-laser, som består av en gallium-arsenlaserenhet som avgir stråling i bølgelengdeområdet 770-795 nanometer. Lasersystemet og skriveren er utformet slik at personer aldri utsettes for laserstråling ut over klasse I-nivå under vanlig bruk, vedlikehold som utføres av brukeren, eller foreskrevne serviceoperasjoner.

Avís sobre el Làser

Segons ha estat certificat als Estats Units, aquesta impressora compleix els requisits de DHHS 21 CFR, apartat J, pels productes làser de classe I (1), i segons ha estat certificat en altres llocs, és un producte làser de classe I que compleix els requisits d'IEC 825.

Els productes làser de classe I no es consideren perillosos. Aquesta impressora conté un làser de classe IIIb (3b) d'arseniür de gal.li, nominalment de 5 mil.liwats, i funciona a la regió de longitud d'ona de 770-795 nanòmetres. El sistema làser i la impressora han sigut concebuts de manera que mai hi hagi exposició a la radiació làser per sobre d'un nivell de classe I durant una operació normal, durant les tasques de manteniment d'usuari ni durant els serveis que satisfacin les condicions prescrites.

Japanese Laser Notice

レーザーに関するお知らせ

このプリンターは、米国ではＤＨＨＳ ２１ ＣＦＲサブチャプターＪのクラスＩ（１）の基準を満たしたレーザー製品であることが証明されています。また米国以外ではＩＥＣ ８２５の基準を満たしたクラスＩのレーザー製品であることが証明されています。

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Chinese Laser Notice

注意：

本打印机被美国认证合乎 DHHS 21 CFR Subchapter I 对分类 I (1) 激光产品的标准，而在其他地区则被认证合乎 IEC 825 的标准。

分类 I 激光产品一般认为不具危险性，本打印机内部含有分类 IIIb (3b) 的激光，在操作过程中会产生 5 毫瓦含镓及砷的微量激光，其波长范围在 770-795 nm 之间。本激光系统及打印机的设计，在一般操作、使用者维护或规定内的维修情况下，不会使人体接触分类 I 以上等级的辐射。

Korean Laser Notice

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1. General Information

The Optra™ C is a 600 dpi Color Laser printer designed to attach to IBM-compatible PC's and to most types of computer networks. The one model is available with standard PostScript Level 2 emulation and PCL 5 emulation:

	A4 Full Color	A4 Mono Color	A4 Full Color Fine Mode
Print speed in pages per minute	3	12	2.5

Power Consumption

Max. A/C draw 110 V	1.1kW
Max. A/C draw 220 V	1.0kW

Options

The following options are available. Some options are not available in every country. Contact your point of purchase for options available in your country.

Memory upgrade options of 2MB, 4MB, 8MB, 16MB and 32MB.

Flash memory options of 1MB, 2MB and 4MB

Integrated network options

- Token-Ring
- Ethernet

Second drawer option (tray 2)

Internal disk option

Maintenance Approach

The diagnostic information in this manual leads you to the correct field replaceable unit (FRU) or part. Use the error code charts, symptom index, service checks, and diagnostic aids to determine the symptom and repair the failure.

This printer can be serviced without being connected to a host computer.

After you complete the repair, perform tests as needed to verify the repair.

When the message “80 scheduled maintenance” appears, replace the following parts:

Note: At 60k prints or less, depending on the number of transparencies.

Fuser Assembly (see assembly 32-1)
Air Filter (see assembly 1-24)
Ozone Filter (see assembly 7-30)
Separation Corona (see assembly 30-5)
Drum Cleaning Assembly (see assembly 31-1)

Also, it is recommended the following parts be replaced at the indicated intervals:

100k - Multipurpose Tray Pickup Roller (see assembly 25-3)
100k - Separation Pad (see assembly 25-5)
100k - Rear Feed Roller (see assembly 24-7)
100k - Front Feed Roller (see assembly 24-4)
200k - Cassette Pickup Roller (see assembly 24-2)

Service Checkpoints

Fuser Unit

Point	Tool/Solvent	Remarks
Delivery Guide	MEK	Clean lightly to remove toner.
Separation Claw Unit	MEK	Clean carefully, the tip breaks easily.
Entrance Guide	MEK	Clean

Cassette Pickup Unit

Point	Tool/Solvent	Remarks
Feed Roller Separation Roller	Damp towel or alcohol	Clean

Transfer Drum Holder Unit

Point	Tool/Solvent	Remarks
Transfer Sheet	Lint free paper	Clean, do not use water or solvents and do not contaminate with solvents or oil.

Drum Cartridge

Point	Tool/Solvent	Remarks
Photoconductor	Toner	Clean, do not use water or solvents and do not contaminate with solvents or oil. When removing the drum store it in the drum cover.

Manual Feeding Tray Pickup Unit

Point	Tool/Solvent	Remarks
Separation Pad	Dry towel	Clean

Density Sensor Unit

Point	Tool/solvent	Remarks
Density Sensor Window	Specialty brush	Clean
Separation Charging Unit	Specialty brush	Clean

Tools

The removal and adjustment procedures described in this manual require the following tools and equipment:

- Magnetic tip Phillips screwdrivers large and small
- Flat-blade screwdriver
- Fuse puller
- Analog or digital volt ohmmeter
- Oil syringe and bottle
- Drop cloth
- Grease
- Cleaning tissue
- Magnifier
- Gloves
- Retaining ring pliers
- Ruler

Refer to the parts catalog for part numbers of special tools. When taking voltage readings, always use frame ground unless another ground is specified.

Abbreviations

ASIC	Application-Specific Integrated Circuit
CSU	Customer Setup
DRAM	Dynamic Random Access Memory
EPROM	Erasable Programmable Read Only Memory
EP	Electrophotographic Process
ESD	Electrostatic Discharge
FRU	Field Replaceable Unit
HVPS	High Voltage Power Supply
LAN	Local Area Network
LASER	Light Amplification by Stimulated Emission of Radiation
LCD	Liquid Crystal Display
LED	Light-Emitting Diode
LVPS	Low Voltage Power Supply
NVRAM	Nonvolatile Random Access Memory
OEM	Original Equipment Manufacturer
PICS	Problem Isolation Charts
PIXEL	Picture Element
POR	Power-On Reset
POST	Power-On Self Test
PQET	Print Quality Enhancement Technology
RIP	Raster Image Processor
ROS	Read-Only Storage
SRAM	Static Random Access Memory
UPR	Used Parts Replacement
VAC	Volts alternating current
VDC	Volts direct current

2. Diagnostic Information

Diagnostic/Maintenance Approach

This printer can be serviced without being connected to a host computer.

This printer will display both operator correctable errors and service errors on the front (operator) panel. In addition, there are tests available from the density adjustment panel on the back of the machine that bypass the video controller board. These basic engine function tests to enable you to eliminate potential software problems. These tests are covered in Chapter 3, “Diagnostic Aids”.

Using the diagnostic information in this manual leads you to the correct field replaceable unit (FRU), or part. Before replacing an entire FRU, determine if just the defective part is available in the parts section, Chapter 7. Always replace the smallest possible part. Use the error code charts, symptom index, service checks and the diagnostic aids chapter to determine the symptom and repair the failure. After you complete the repair, perform the appropriate tests to verify the repair.

DO NOT swap parts as a diagnostic technique. Certain parts work as a system and unnecessary swapping of these parts may lead to print quality.

DC Controller Board Information

The DC controller board (DCCB) controls the printer. When the PRINT signal is received from the video controller board, the DCCB sends the print sequence command to the mechanical controller board (MCB) which starts controlling the various loads.

The DC controller board retains important information in EEPROM concerning drum life, oil out warnings, registration adjustments, and so on. In addition, this board contains proprietary information and should be replaced ONLY when directed by the appropriate service check.

The DC controller board also provides:

- Laser/Scanner control
- Image stabilization control (environmental, toner quality, photoconductor drum life)
- Fuser temperature control
- Power-OFF time measurement
- Various detection functions
- Video interface control

Mechanical Controller Board Information

The mechanical controller board (MCB) controls the various loads in response to signals received from the DC controller board (DCCB). The MCB then returns the status signals to the DCCB. The MCB controls the pick-up PCB, the high voltage power supply PCB, and the paper feeder driver PCB by way of the serial communication.

The mechanical controller board also provides:

- Drive for the various motors and fan motors
- Control of the toner carousel, fuser transfer drum and peripheral units
- Toner stirring, toner low detection and toner cartridge detection
- Photosensitive drum life detection
- Waste toner collect system control
- Power saving mode control

Note: There are two non-replaceable fuses on the MCB. They are labeled FU2001 and FU2002. If a short occurs on the various solenoids, or if you ground the wrong side, these fuses could open.

Start

Use the error message table, symptom table, service checks, in this chapter and the diagnostic aids in Chapter 3 to determine the corrective action to repair a printer.

If the operator panel is blank, black or appears unusual, unplug the video controller board and run the engine print tests using the Density Adjustment Panel. Go to Chapter 3 “Diagnostic Aids” to start the call since the operator panel or video controller board may have a defect.

If an error is displayed, locate it in the following “error message table” and take the appropriate action.

If your machine does not have an error code and does not complete Power-On Self Test (POST), go to POST and the POST symptom table. If your machine makes it through POST without an error but you have a symptom, go to the symptom table, locate your symptom and take the appropriate action.

If an error message appears while you are working on the printer, go to the error message table and take the indicated action.

Note: Some of the following service checks require voltage and/or continuity readings. For continuity readings, turn off and unplug the printer or optional sheet feeder. For voltage measurements, close the front door and be sure the door micro switch is in the closed position.

WARNING: It is possible for the printer to enter POST or print tests with all covers removed (except the front cover) and the door switch closed.

Operator Codes

The following code numbers are operator instructions and messages. In some cases, no action is required; others are operator-correctable; and others may require service. An error code may require up to one minute to appear. Some symptoms may not generate an error code. Locate your symptom in the table and take the indicated action.

Code	Symptom
20 - 25	Paper Jam When experiencing repeated or non resetable paper jam codes, go to "Paper Feed Troubleshooting" on page 2-38.
26	Incorrect Paper Size Ensure that the size of the paper being fed matches the size of the paper selected in the paper setup menu, and the gates in the cassette. Also check the cassette size sensing PCB and the ejection sensing PCB. Refer to the Block Wiring Diagram Sheet.
27	Change Paper The LCD displays the following paper sizes: (Letter, Legal, B5, A4)
28	Load Paper Ensure there is paper in the tray(s). If paper is present, check the operation of the cassette paper sensor, PS301.
30	Door Open There is only one door open switch. It is located above the LVPS. It is a mechanical "and gate". The front door, fuser access door and paper feed mechanism must all be closed to actuate this switch. Remove the rear cover and EMC shield. Trace the motion of the interlocks and repair as necessary.
31 - 34	Cartridge Missing If all cartridges are incorrectly reported missing, check: • The toner low detect PCB (Beam) • The toner low detect PCB (Receiver) • The density sensor ribbon cable
35	Cartridge Eject Handle Out Check the mechanical operation of the cartridge eject lever. If this is OK, check the ejection sensing PCB for damage to the ejection sensing switch.

Code	Symptom
41	Waste Bottle Full Check for: • Full bottle • Improper installation • Missing bottle • Broken interlock • Toner on window of bottle (Use a clean, dry rag to clean the window. Do not use finger.)
42	Oil Bottle Empty/Missing Check to ensure the bottle is not empty. If the bottle has oil, remove the fuser and verify the float ball in the oil bottle case is following the level of the oil. Check the operation of the oil sensor PCB in the machine, (it is not in the fuser).
43	Photoconductor Unit Missing Ensure that the photoconductor unit is completely seated in the machine. Check the continuity from J1004-5 on the HVPS to the spring that contacts the pad on the rear of the photoconductor. There is a resistor of approximately ± 9K ohms in this line.
44	Fuser Life Exhausted Remove the fuser from the printer. Remove the yellow cover from the top of the fuser and verify that the cleaning web is exhausted. A notch at the life limit of the web allows an arm to drop, which blocks a sensor located on the printer, (not the fuser) near the exit drive mechanism. If the web is exhausted, drain the fuser oil and replace the fuser. If the arm has prematurely dropped, (or if the customer has pushed it down), reset the arm on top of the web and reinstall the fuser. **Note:** Fuser replacement is the responsibility of the customer.
45	Paper Feed Mechanism Missing Either the paper feed mechanism has not been securely latched into the machine or there is a problem with the self docking connector.

Code	Symptom
46	Toner Cartridge Not Correctly Installed If there is a problem with one or more toner cartridges, check the following: 1. The latch at the rear that keeps the cartridge cover locked. 2. The hook at the rear that locks the cartridge into the rotary assembly. 3. The three color-keyed locating pins in the front of the cartridge (that face to the rear). 4. If a good cartridge causes Code 46 to display, see “Error (46) Toner Cartridge Not Installed Correctly” on page 2-14.
80	Scheduled Maintenance - see Code 44.
83	Photoconductor Unit Life Warning The photoconductor is nearing end-of-life. Do not replace the photoconductor with another used unit for troubleshooting purposes. If a new unit is installed and the code 83 message remains, carefully check the density sensor ribbon cable.
84	Oil Bottle Low - see Code 42.
85 - 88	Toner Low Remove and gently shake the cartridges. This may allow additional usage. At this point, print quality may have degraded and background will become more pronounced (end-of-life). If this code applies to one cartridge which is known to be new, check the two windows on the cartridge for damage or debris. If the machine reports all cartridges low, check the toner low detect PCT (Beam) and toner low detect PCB (Receive). Refer to the Block Wiring Diagram Sheet.

Power-On Self Test (POST)

When you turn the printer on, it performs a Power-On Self Test (POST). Check for correct POST functioning by observing the following:

1. All Operator Panel segments turn on from the top row down then clear.
2. Diamonds fill the display and then clear.
3. The Fuser Lamps and Fans turn on and "Performing Self Test" appears on the display.

   Note: If there is a fault with the printer, the machine will terminate the POST within 10 seconds, the machine beeps, and the Error Code will be displayed within 35 seconds.

4. The Developing Rotary Assembly Drive Motor turns on and rotates the assembly to the first homing position.
5. The Developing Rotary Assembly is indexed one position at a time looking for missing cartridges. If a cartridge is missing, the Developing Rotary Assembly stops at that position and prompts the operator to load the cartridge, POST continues.
6. The Main Drive Motor turns on and drives the Fuser Exit mechanism (depending upon the temperature of the Fuser).
7. The Transfer Drum Drive Motor is energized, the Transfer Drum Engagement and Cleaning Brush Engagement solenoids pick within 10 seconds, and 5 seconds later, the Cleaning Brush Motor is energized.
8. The Display reads "Busy".
9. Each Cartridge in turn is pressed into the development position, stirred and checked for low toner.
10. The Laser Scan Motor is energized.
11. Each cartridge in turn is indexed into the development position, and pressed against the PC.
12. Each cartridge (starting with Magenta) lays down a series of small (< 1 ") squares of toner directly on the Transfer Drum for calibration purposes. These patches start at MAXIMUM density and drop to half tones. The black patches are laid down on the white portion of the drum.

13. After the patches are read by the Density Sensor, the Cleaning Brush mechanism is pressed against the drum and the Cleaning Brush Motor is energized.
14. The calibration process is repeated this time starting at MINIMUM density and going to MAXIMUM density. At the end of this cycle the Cleaning Brush Mechanism is pressed and the Cleaning Brush Motor is energized.
15. Drive motors stop, all fans stay on.

Note: If any of the supplies need attention, a message will be displayed at this time.

16. The Display reads “Ready”.

Error Message Table

Error	Message	Action
46	Toner cartridge not correctly installed	See “Error (46) Toner Cartridge Not Installed Correctly” on page 2-14.
111	Fuser, warm-up Temperature low	See “Error (111/112) Fuser, Warm-Up/Temperature Low” on page 2-15.
112	Fuser, warm-up Temperature low	See “Error (111/112) Fuser, Warm-Up/Temperature Low” on page 2-15.
113	Thermistor short	See “Error (113) Fuser Temperature High” on page 2-16.
114	Fuser	See “Error (114) Fuser Failure” on page 2-16.
115	Fuser upper heater / Thermoswitch	See “Error (115) Fuser Heater Off” on page 2-17.
116	Fuser unit missing	See “Error (116) Fuser Unit Missing” on page 2-17.
117	Fuser pump failure	See “Error (117) Fuser Pump Failure” on page 2-18.
121	Laser board failure	See “Error (121/125) Laser Board Failure” on page 2-20.
125	Laser board failure	See “Error (121/125) Laser Board Failure” on page 2-20.
122	Laser failure	See “Error (122) Laser Failure” on page 2-20.
123	Mirror motor start-up or rotation	See “Error (123/124) Mirror Motor Start-up or Rotation” on page 2-21.
124	Mirror motor start-up or rotation	See “Error (123/124) Mirror Motor Start-up or Rotation” on page 2-21.
126	Transfer drum motor failure	See “Error (126/131) Transfer Drum Motor Failure” on page 2-22.
130	Service motor error	See “Error (130) Service Motor Error” on page 2-22.
131	Transfer drum motor failure	See “Error (126/131) Transfer Drum Motor Failure” on page 2-22.

Error	Message	Action
132	Main motor start-up or rotation	See “Error (132/133) Main Motor (M2) Start-Up or Rotation” on page 2-23.
133	Main motor start-up or rotation	See “Error (132/133) Main Motor (M2) Start-Up or Rotation” on page 2-23.
134	Controller fan motor failure	See “Error (134) Controller Fan Motor Failure” on page 2-23.
135	Fuser unit fan motor failure	See “Error (135) Fuser Unit Fan Motor Failure” on page 2-24.
136	Electrical unit fan motor failure	See “Error (136) Electrical Unit Fan Motor Failure” on page 2-24.
141	Power supply failure	See “Error (141) Power Supply Failure (LVPS 110V or 220V)” on page 2-25.
142	Engine board memory failure	See “Error (142) Engine Board Memory Failure” on page 2-25.
143	5v / 24v Supply failure	See “Error (143) 5 V / 24 V Supply Failure” on page 2-26.
144	Temperature / humidity sensor failure	See “Error (144) Temperature/ Humidity Sensor Failure” on page 2-26.
145	Density sensor failure	See “Error (145) Density Sensor Failure” on page 2-26.
146	Printer communication failure	See “Error (146) Printer Communication Failure” on page 2-27.
147	Engine board IC failure	See “Error (147) Engine Board IC Failure” on page 2-27.
148	Developer unit rotation failure	See “Error (148) Developer Unit Rotation Failure” on page 2-28.
149	Developer unit pressure failure	See “Error (149) Developer Unit Pressure Failure” on page 2-29.
152	Power failure	See “Error (152) Tray 2 Power Failure” on page 2-29.

Symptom Table

Symptom	Action
Background	Go to “Background” on page 2-54
Black	Go to “Black Service Check” on page 2-61
Blank Page	Go to “Blank Page Service Check” on page 2-62
Blank Spots	Go to “Blank Spots Service Check” on page 2-63
Color Aberration	Go to “Color Aberration Service Check” on page 2-63
Dark Image	Go to “Dark Image Service Check” on page 2-64
Dead Machine	Go to “No AC Power/Dead Machine” on page 2-30
Dirt On Back Of Paper	Go to “Dirt On Back Of Paper Service Check” on page 2-65
Dirty	Go to “Dirty Print Service Check” on page 2-66
Distortion	Go to “Distortion Service Check” on page 2-67
Folds On Top Of Paper	Go to “Leading-Edge Fold” on page 2-44
Horizontal Voids	Go to “Horizontal Voids Service Check” on page 2-67
Light Image	Go to “Light Image Service Check” on page 2-68
Multiple Sheet Feeds	Go to “Multi-Feed” on page 2-43
No Cassette Feed	Go to “No Pickup (Cassette Feed)” on page 2-32
No DC Power	Go to “No DC Power” on page 2-31
No High Voltage	Go to “High-Voltage Power Supply Output” on page 2-33

Symptom	Action
No Manual Feed	Go to “No Pickup (Manual Feed)” on page 2-31
No Optional Feeder Paper Pickup	Go to “No Pickup (Manual Feed)” on page 2-31
Paper Feed Problems In Pickup Area	Go to “Paper Feed Troubleshooting” on page 2-38
Paper Feed Problems In Drum Area	Go to “Transfer Drum Unit” on page 2-40
Paper Feed Problems In Fuser and Delivery Area Code 25, Paper Jam Message Will Not Reset	Go to “Fuser/Delivery Unit” on page 2-41
Poor Fusing	Go to “Poor Fusing Service Check” on page 2-69
Registration Roller Not Turning	Go to “Registration Roller Does Not Rotate” on page 2-33
Skew	Go to “Skewing” on page 2-45
Streaking	Go to “Streaking Service Check” on page 2-70
Toner Scatter	Go to “Toner Scattered Service Check” on page 2-71
Vertical Lines	Go to “Vertical Lines Service Check” on page 2-72
White Vertical Lines	Go to “Vertical Lines Service Check” on page 2-72
Wrinkled Paper	Go to “Wrinkles” on page 2-44

Service Checks

Error (46) Toner Cartridge Not Installed Correctly

	FRU	Action
1	Cartridge(s)	Check for broken locating pins. If the cartridge appears OK, try a different one or set.
2	Carousel brake	Check the brake clutch (Asm 16, Ref 9) for continuity. Check the wiring to the mechanical controller board.
3	Mechanical controller PCB.	Replace the mechanical controller PCB.

Error (111/112) Fuser, Warm-Up/Temperature Low

	FRU	Action
1	Poor connection	Check the connections of DC controller PCB connector J112 and mechanical controller PCB connector J2007. Reconnect them.
2	Thermistor/ wiring	Turn the power switch OFF, remove the fuser unit, and measure the resistance between fuser unit connectors J21-5 and J21-6, see “Fuser Connector (J21)” on page 5-37. Is it between 180 Ohms and 280 Ohms (normal temperature)? Check the wiring between DC controller connector J112 and the thermistor, and if it is normal, replace the thermistor.
3	Fuser upper heater/ thermoswitch	Is there continuity between fuser unit connectors Thermoswitch J21-1 and J21-2 when the fuser unit is removed? See “Fuser Connector (J21)” on page 5-37. Check the continuity of both the fuser upper heater and the thermoswitch, and replace defective parts.
4	Fuser lower heater/ thermoswitch	Is there continuity between fuser unit connectors Thermoswitch J21-3 and J21-4 when the fuser unit is removed? See “Fuser Connector (J21)” on page 5-37. Check the continuity of both the fuser lower heater and the thermoswitch, and replace defective parts.
5	Thermistor mounting	Is the thermistor uniformly connected to the fuser lower roller?
6	Thermistor soiled	Is the thermistor surface contacting the fuser roller soiled? Clean it.
7	Power supply unit (low voltage) DC controller PCB/ Mechanical controller PCB	Replace the power supply unit. If the problem remains, replace and check as follows: 1. DC controller PCB, see “DC Controller Board Information” on page 2-2. 2. Mechanical controller PCB.

Error (113) Fuser Temperature High

	FRU	Action
1	Thermistor short	Turn the power switch OFF, and remove the fuser unit. Measure the resistance between fuser unit connectors J21-5 and J21-6, see “Fuser Connector (J21)” on page 5-37. Is it 1 Ohm or less? Check the wiring between DC controller PCB connector J112 and the thermistor, and if it is normal, replace the thermistor.
2	DC controller PCB Mechanical controller PCB	Replace and check as follows: 1. DC controller PCB, see “DC Controller Board Information” on page 2-2. 2. Mechanical controller PCB.

Error (114) Fuser Failure

	FRU	Action
1	Fuser	Replace the fuser unit.

Note: Error 114 is stored in the DC Controller Board memory. It will not allow the machine to POR for 30 minutes. The memory can be reset to see if the error returns. To reset the memory do the following:

1. Turn the machine off.
2. Short JP101 to ground with a volt meter lead, and remove the lead.
3. Turn the machine on and see if the error appears.
4. If it reappears, perform steps 1 and 2, then replace the fuser assembly.

Error (115) Fuser Heater Off

	FRU	Action
1	Fuser upper heater / Thermoswitch	Turn the power switch OFF, and remove the fuser unit. Is there continuity between fuser unit connectors J21-1 and J21-2? See “Fuser Connector (J21)” on page 5-37. Check the continuity of both the fuser upper heater and the thermoswitch, and replace defective parts.
2	Fuser lower heater / Thermoswitch	Is there continuity between fuser unit connectors J21-3 and J21-4 when the fuser unit is removed? See “Fuser Connector (J21)” on page 5-37. Check the continuity of both the fuser lower heater and the thermoswitch, and replace defective parts.
3	Power supply unit (low voltage) DC controller PCB Mechanical controller PCB	Replace the power supply unit. If the failure remains, replace and check as follows: 1. DC controller PCB, see “DC Controller Board Information” on page 2-2. 2. Mechanical controller PCB.

Error (116) Fuser Unit Missing

	FRU	Action
1	Fuser	Ensure the fuser unit is secure and making electrical contact.

Error (117) Fuser Pump Failure

Note: This printer must be absolutely level. If it is tipped more than 1 degree to the right and/or rear, the suction pump will not function correctly and the printer will report a 117 fuser error.

Before starting the diagnostic procedure, do the following:

1. Be sure the printer is level.
2. Turn the printer off and remove the oil bottle.
3. Use the suction tool to remove as much oil as possible from the reservoir.
4. Pump the fuser manual lever 30 or 40 times.
5. Repeat steps 3 and 4 until no additional oil is pumped into the reservoir.
6. Reinstall the oil bottle, close the covers and turn the printer on.
7. The printer should complete POST. If a 117 error is reported while running test pages, continue with the following service check.

If you level the printer and the 117 error does not re-appear within 25 pages, end the call.

Use of a spray contact cleaner in most instances will allow normal functioning of the fuser sensors, which have been contaminated with silicone oil. The only cleaner currently approved by Lexmark is CRC brand industrial contact cleaner # 03130.

In addition to the cautions on the Material Safety Data Sheet (MSDS) label attached to the can, observe the following guidelines:

- When spraying either fuser sensor (PS9 or PS10), place a piece of absorbent material below the sensor to catch the excess spray.
- Use the supplied nozzle and direct the spray into the small apertures in the inside walls of the sensors.
- Spray quickly (approximately 1 second applications).

This spray leaves no residue, contains no CFCs and is plastic safe. Do Not use a substitute spray that has not been tested and is not plastic safe.

	FRU	Action
1	Float	Ensure the oil float is not catching on its housing and is free to move.
2	Poor connection/ Dirty Sensor	Check the connections on the oil overflow sensor connector J29, fuser unit connector J21, (see “Fuser Connector (J21)” on page 5-37) and mechanical controller PCB connector J2009. Reconnect them and replace sensor PS10.
3	Fuser unit oil supply route	Is the hose between the oil supply bottle and the gear pump plugged up? Clean or replace the parts.
4	Fuser unit Mechanical controller PCB DC controller PCB	Replace the fuser unit. If the problem remains, replace and check as follows: 1. Mechanical controller PCB. 2. DC controller PCB, see “DC Controller Board Information” on page 2-2.

Error (121/125) Laser Board Failure

Note: A 125 error may occur due to temperature extremes and may be of a temporary nature.

Check the error log.

- If it is a one time occurrence, POR the printer to see if it resets.
- If it has occurred multiple times, replace the laser FRU.

	FRU	Action
1	Laser/scanner unit DC controller PCB	Check the connections on the DC controller connectors J102, J110, and J111. Go to the "Horizontal Voids Service Check" on page 2-67. Check the connections on the laser driver PCB connectors J401 and J402. Check the connection on the PCB connector J451. Replace and check as follows: 1. Laser/scanner unit. 2. DC controller PCB, refer to "DC Controller Board Information" on page 2-2.

Error (122) Laser Failure

	FRU	Action
1	Laser/scanner unit DC controller PCB	Check the DC controller PCB connectors J110 and J111. Check the connections on the laser driver PCB connectors J401 and J402. Replace and check as follows: 1. Laser/scanner unit. 2. DC controller PCB, see "DC Controller Board Information" on page 2-2.

Error (123/124) Mirror Motor Start-up or Rotation

	FRU	Action
1	Poor connection	Check the connection on the DC controller PCB connector J102. Reconnect it.
2	Power supply unit (low voltage)	Are there approximately 24 V dc between DC controller PCB connectors J102-10 (24 V) and J102-5 (GND)? Check whether +24 V dc is being supplied between DC controller PCB connectors J101-4 (24 V) and J101-3 (GND). If it is not, replace the power supply unit.
3	Laser/scanner unit DC controller PCB	Test print a page. Does the voltage between DC controller PCB connectors J102-8 and J102-7 (GND) change from about 5 V dc to OV? If yes, replace the laser/scanner unit. If no, replace the DC controller PCB, see “DC Controller Board Information” on page 2-2.

Error (126/131) Transfer Drum Motor Failure

	FRU	Action
1	Poor connection	Check the connection on the mechanical controller PCB connector J2015. Reconnect it.
2	Door switch	Turn the machine off and unplug the power cord. Disconnect connector J7 from the power supply unit. When you turn the door switch (SW2) ON, is there continuity between connectors J7-1 (+24VB) and J7-2 (+24VA)? Replace the door switch.
3	Drum motor Mechanical controller PCB	Watch the drum motor during POST. Does it rotate? Replace and check as follows: 1. Drum motor. 2. Mechanical controller PCB.
4	Transfer drum top sensor DC controller PCB	Check the connection on the transfer drum top sensor connector J43. Replace and check as follows: 1. Transfer drum top sensor. 2. DC controller PCB, see “DC Controller Board Information” on page 2-2.

Error (130) Service Motor Error

	FRU	Action
1	Mechanical controller PCB	Replace the mechanical controller PCB.

Error (132/133) Main Motor (M2) Start-Up or Rotation

	FRU	Action
1	Poor connection	Check the connection on the mechanical controller PCB connector J2013. Reconnect it.
2	Door switch	Turn the machine off and disconnect the power cord. Disconnect connector J7 from the power supply unit. When you turn the door switch (SW2) ON, is there continuity between connectors J7-1 (+24VB) and J7-2 (+24VA)? Replace the door switch.
3	Main motor Mechanical controller PCB	About one minute after turning the power switch ON, does the voltage between mechanical controller PCB connectors J2013-3 and J2013-4 (GND) change from about 5 V dc to OV? If yes, replace the main motor. If not, replace the mechanical controller PCB.

Error (134) Controller Fan Motor Failure

	FRU	Action
1	Connection	Check the connection of mechanical controller PCB connector J2010. Reconnect it.
2	Controller fan Mechanical Controller PCB	Turn the machine off. Disconnect mechanical controller PCB connector J2010. Immediately after turning the power switch ON, does the voltage between mechanical controller PCB connectors J2010-3 and J2010-1 (GND) change from OV to about 22 V dc? If yes, replace the controller fan. If no, replace the mechanical controller PCB.

Error (135) Fuser Unit Fan Motor Failure

	FRU	Action
1	Poor connection	Check the connection of mechanical controller PCB connector J2012. Reconnect it.
2	Fuser unit fan Mechanical controller PCB	Turn the machine off. Disconnect mechanical controller PCB connector J2012. Immediately after turning the power switch ON, does the voltage between mechanical controller PCB connectors J2012-3 and J2012-1 (GND) change from OV to about 24 V dc? If yes, replace the fuser unit fan. If no, replace the mechanical controller PCB.

Error (136) Electrical Unit Fan Motor Failure

	FRU	Action
1	Poor connection	Check the connection of mechanical controller PCB connector J2019. Reconnect it.
2	Electrical unit fan Mechanical controller PCB	Turn the machine off. Disconnect mechanical controller PCB connector J2019. Immediately after turning the power switch ON, does voltage between mechanical controller PCB connectors J2019-3 and J2019-1 (GND) change from OV to about 24 V dc? If yes, replace the mechanical unit fan. If no, replace the mechanical controller PCB.

Error (141) Power Supply Failure (LVPS 110V or 220V)

	FRU	Action
1	Wrong fuser unit (New fuser or machine)	Turn the power switch OFF, and remove the fuser unit. Do the power supply rated voltage and fuser unit rated voltage correspond? Replace the fuser unit so that it corresponds to the power supply rated voltage.
2	Fuser upper heater / thermoswitch	Is there continuity between fuser unit connectors J21-1 and J21-2 when the fuser unit is removed? Check the continuity of both the fuser upper heater and the thermoswitch, and replace defective parts.
3	Fuser lower heater / thermoswitch	Is there continuity between fuser unit connectors J21-3 and J21-4 when the fuser unit is removed? Check the continuity of both the fuser lower heater and the thermoswitch, and replace defective parts.
4	Power supply unit (low voltage) DC controller PCB Mechanical controller PCB	Replace and check as follows: 1. Power supply unit. 2. DC controller PCB, see “DC Controller Board Information” on page 2-2. 3. Mechanical controller PCB.

Error (142) Engine Board Memory Failure

	FRU	Action
1	DC controller PCB	Replace the DC controller PCB, see “DC Controller Board Information” on page 2-2.

Error (143) 5 V / 24 V Supply Failure

	FRU	Action
1	Power supply unit (low voltage) DC controller PCB	Check the connections on the DC controller PCB connector J101 and power supply unit connector J4. Replace and check as follows: 1. Power supply unit. 2. DC controller PCB see “DC Controller Board Information” on page 2-2.

Error (144) Temperature/Humidity Sensor Failure

	FRU	Action
1	Temperature/ humidity sensor unit Mechanical controller PCB DC controller PCB	Check the connections on the temperature/humidity sensor unit connector J73, connector J15, and mechanical controller PCB connector J2005. Replace and check as follows: 1. Temperature/humidity sensor unit. 2. Mechanical controller PCB. 3. DC controller PCB, see “DC Controller Board Information” on page 2-2.

Error (145) Density Sensor Failure

	FRU	Action
1	Density sensor unit / cable DC controller PCB	Check the connections on the density sensor unit PCB connector J501 and DC controller PCB connector J103. Replace and check as follows: 1. Cable. 2. Density sensor unit. 3. DC controller PCB, see “DC Controller Board Information” on page 2-2.

Error (146) Printer Communication Failure

	FRU	Action
1	Paper feeder (printer)	Check to ensure the paper feeder is latched in place, and the self docking connector is not damaged.
2	Mechanical controller DC controller PCB	Check the connections on the DC controller PCB connector J112 and mechanical controller PCB connector J2007. Replace and check as follows: 1. Mechanical controller PCB. 2. DC controller PCB. see “DC Controller Board Information” on page 2-2.

Error (147) Engine Board IC Failure

	FRU	Action
1	DC controller PCB	Replace the DC controller PCB, see “DC Controller Board Information” on page 2-2.

Error (148) Developer Unit Rotation Failure

	FRU	Action
1	Poor connection	Check the connection on the mechanical controller PCB connector J2016. Reconnect it.
2	Door switch	Turn the machine off and disconnect the power cord. Disconnect connector J7 from the power supply unit. When you turn the door switch (SW2) ON, is there continuity between connectors J7-1 (+24VB) and J7-2 (+24VA)? Replace the door switch.
3	Developing rotary brake clutch Developing unit drive clutch Mechanical controller PCB Developing unit motor Mechanical controller PCB	Watch the developer unit motor during POST. Does it rotate? If yes, replace and check as follows: 1. Developing rotary brake clutch. 2. Developing unit drive clutch. 3. Mechanical controller PCB. If no, replace and check as follows: 1. Developing unit motor. 2. Mechanical controller PCB.
4	Developing rotary position sensor Mechanical controller PCB	Check the connections on the mechanical controller PCB connector J2006 and developing rotary position sensor connector J60. Clean the sensor. If it is not possible to clean it, replace and check as follows: 1. Developing rotary position sensor. 2. Mechanical controller PCB.

Error (149) Developer Unit Pressure Failure

	FRU	Action
1	Poor connection	Check the connection on the mechanical controller PCB connector J2016.
2	Door switch	Turn the machine off and disconnect the power cord. Disconnect connector J7 from the power supply unit. When you turn the door switch (SW2) ON, is there continuity between connectors J7-1 (+24VB) and J7-2 (+24VA)? Replace the door switch.
3	Developing unit	Watch the developer unit motor during POST. Does the developing unit motor rotate? Replace and check as follows: 1. Developing unit motor. 2. Mechanical controller PCB.
4	Developing rotary position sensor Toner cartridge position sensor Mechanical controller PCB	Check the connections on the mechanical controller PCB connector J2006, toner cartridge position sensor connector J59 and developing rotary position sensor position sensor J60. Replace and check as follows: 1. Toner cartridge position sensor. 2. Developing rotary position sensor. 3. Mechanical controller PCB.

Error (152) Tray 2 Power Failure

	FRU	Action
1	Poor connection	Check the connections on the paper feeder driver PCB connector J355 and power supply unit connector J361. Reconnect them.
2	Power supply unit Paper feeder driver PCB Mechanical controller PCB DC controller PCB	Replace the paper feeder power supply unit. Replace and check as follows: 1. Paper feeder driver PCB. 2. Mechanical controller PCB. If the problem remains, replace the DC controller PCB. See “DC Controller Board Information” on page 2-2.

No AC Power/Dead Machine

	FRU	Action
1	On/Off switch connector	Be sure connector J6, see “Connector Locations” on page 5-14, is connected into the LVPS. This connector will sometimes fall off the LVPS when working in this area.
2	Power supply	Check voltage at the outlet. Inform the user that rated voltage is not supplied at the outlet.
3	Power cord	Is the power cord firmly plugged into the printer, the paper feeder and the outlet? Replug it.
4	Circuit breaker (CB1)	Is the circuit breaker OFF? Press the button to reset the breaker. If the circuit breaker turns OFF again immediately after turning the power switch ON, check whether the AC power supply line is shorted. **Note:** This circuit breaker, labeled CB1 is in the LVPS, directly above the power cord connector. The button can be viewed without removing the power supply from the machine. Look in the lowest hole toward the front of the machine. This hole is oblong.
5	Wiring, power supply unit	Unplug the power cord. Check the continuity of the ON/Off switch. Check the AC line wiring. Replace the power supply unit.

No DC Power

	FRU	Action
1	AC power supply	Unplug the power cable. Is AC power being supplied to this cable? Check AC power.
2	Wiring DC load	Turn the power switch OFF, and disconnect connectors J3, J4, and J5. Plug in the power cable, and turn the power switch ON. Are the above mentioned power supply unit connectors correctly outputting DC power? Take care not to cause a short. Turn the power switch OFF, connect 1 of the disconnected connectors, and turn the power switch ON. Repeat this for all the connectors, and investigate the connector operating the protection circuit, checking the wiring from that connector and the DC load.
3	Fuse Power supply unit	Is the power supply unit fuse blown? Replace the fuse. Replace the power supply unit.

No Pickup (Manual Feed)

	FRU	Action
1	Gear	Is the pickup motor drive properly transmitted by the gears? Check the gears, and replace any damaged ones.
2	Pickup motor Pickup PCB	Does the pickup motor rotate? Check the connection of pickup PCB connector J304, and if it is normal: Replace the pickup motor. Replace the pickup PCB.
3	Pickup PCB Manual feed solenoid	Turn the power switch OFF, remove the pickup unit, and disconnect the connector J33. Measure the resistance between cable connectors J33-1 and J33-2. Is it about 100 Ohms? If yes, replace the pickup PCB. If no, replace the manual feed solenoid.

No Pickup (Cassette Feed)

	FRU	Action
1	Gear	Is the pickup motor drive properly transmitted by the gears? Check the gears, and replace any damaged ones.
2	Pickup motor Pickup PCB	Does the pickup motor rotate? 1. Check the connection of pickup PCB connector J304, and if it is normal replace the pickup motor. 2. Replace the pickup PCB.
3	Pickup PCB Cassette feed solenoid	Turn the power switch OFF, remove the pickup unit, and disconnect pickup PCB connector J303. Measure the resistance between cable connectors J303-1 and J303-2. Is it about 100 Ohms? If yes, replace the pickup PCB. If no, replace the cassette feed solenoid.

No Pickup (Optional Paper Feeder Pickup)

	FRU	Action
1	Gear train	Is the paper feeder motor drive properly transmitted by the gears? Check the gears, and replace any damaged ones.
2	Paper feeder motor Paper feeder driver PCB	Does the paper feeder motor rotate? Check the connection of paper feeder driver PCB connector J353, and if it is normal replace the paper feeder motor. Replace the feeder driver PCB.
3	Paper feeder driver PCB Cassette feed solenoid	Turn the power switch OFF, remove the paper feeder, and disconnect J354. Measure the resistance between cable connectors J354-1 and J354-2. Is it about 130 Ohms? If yes, replace the paper feeder driver PCB. If no, replace the cassette feed solenoid.

Registration Roller Does Not Rotate

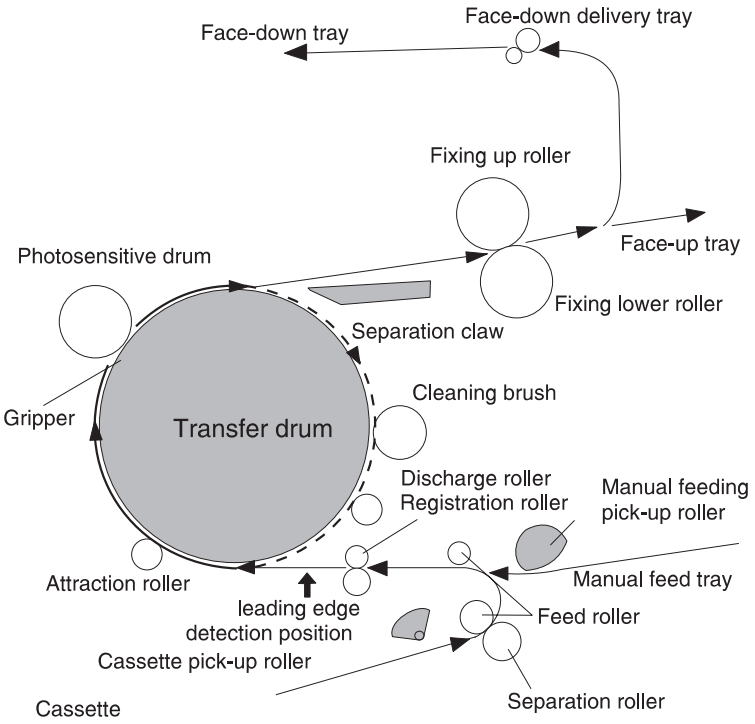
	FRU	Action
1	Gear train	Is the pickup motor drive properly transmitted by the gears? Check the gears, and replace any damaged ones.
2	Pickup PCB Registration roller clutch	Turn the power switch OFF, remove the pickup unit, and disconnect the connector J34. Measure the resistance between cable connectors J34-1 and J34-2. Is it about 145 Ohms? If yes, replace the pickup PCB. If no, replace the registration roller clutch.

High-Voltage Power Supply Output

	FRU	Action
1	High voltage contacts	Are the high-voltage contact terminals soiled or burnt? Clean the high-voltage contacts.
2	High-voltage power supply PCB Mechanical controller PCB DC controller PCB	Does the trouble disappear when you replace the high-voltage power supply PCB? Replace the high-voltage power supply PCB. If not, replace and check as follows: 1. Mechanical controller PCB. 2. DC controller PCB, see “DC Controller Board Information” on page 2-2.

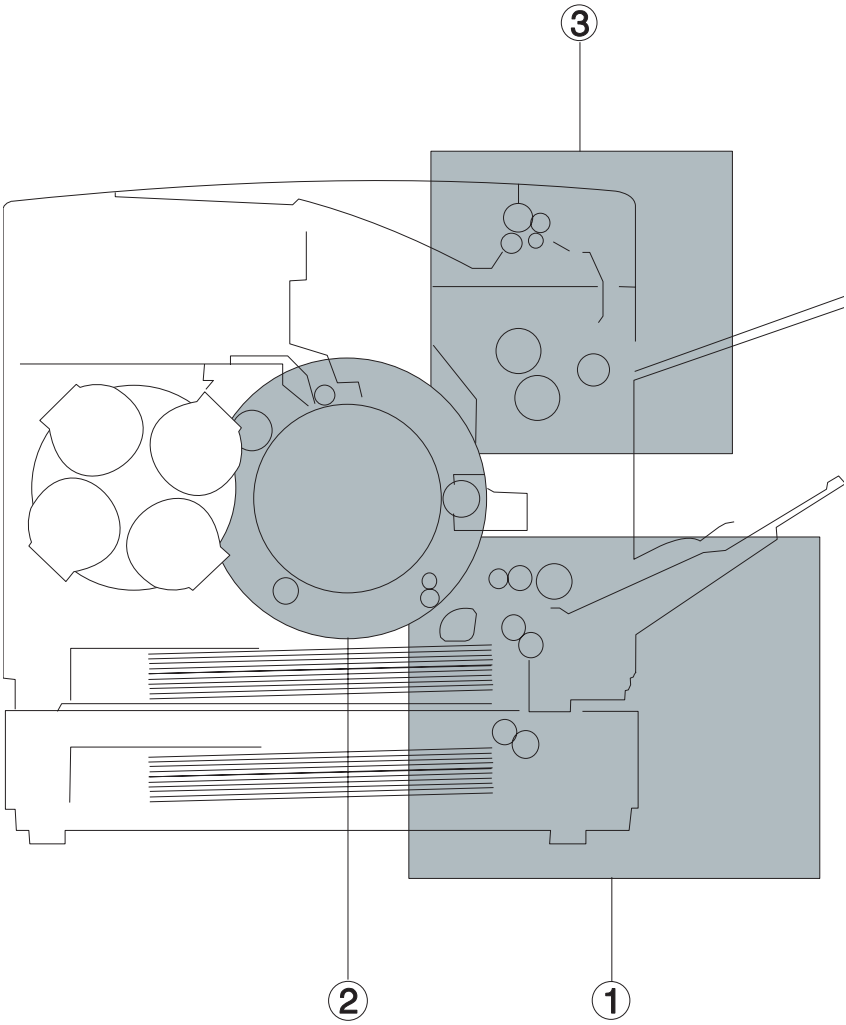
Pickup / Feed System Theory

When the /PRNT signal is sent to the DC controller by the video controller and the scanner motor is put in the READY state, the DC controller issues the print sequence command to the mechanical controller, which then starts printing. After a sheet of paper is picked up by the cassette pickup roller or the manual feeding pickup roller, it is fed by the feed rollers. Any skew of the paper is corrected by the registration roller and it stops at the leading edge detection position. The temporarily stopped paper is fed so that its leading edge will match the gripper on the transfer drum as well as the leading edge of the image on the photosensitive drum. Subsequently, the paper passes through the transfer, separation, fuser, and delivery units to the face-down or face-up tray.



The paper feed route can be divided into 3 sections:

1. Pickup unit,
2. Transfer drum unit,
3. Fusing/delivery unit.



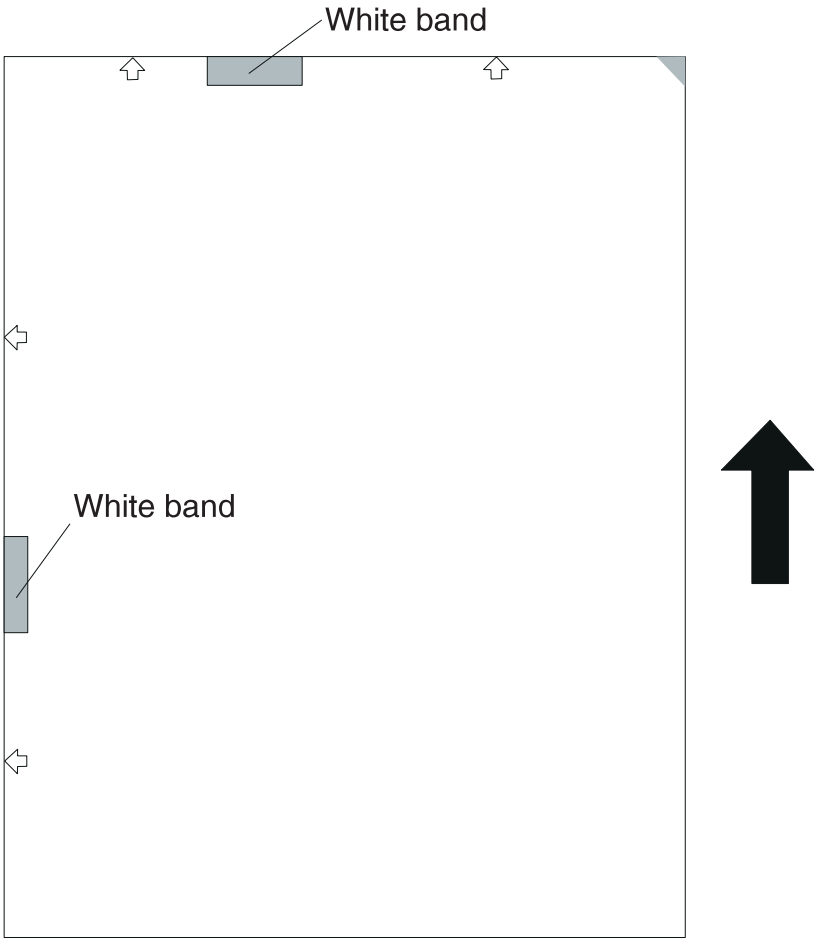
OHP Sheet Detection (transparency)

When an OHP sheet is used for this printer, the dedicated one must be used with a white band at its leading edge. The following determinations are made by measuring the time period that light emitted from the paper top sensor (PS303) is shielded by this band, and whether it is:

- The dedicated OHP sheet, any other OHP, or paper.
- Placed with the proper side up.
- Placed with the proper edge leading.

If any non-dedicated OHP sheet is used or the dedicated OHP sheet is placed with the wrong side up or the wrong end leading, the mechanical controller will notify the DC controller which will signify it as a jam.

The white band disappears when heated in the fusing process.


White band
White band

Paper Feed Troubleshooting

Pickup Unit

(Codes 20 - 21, Paper Jam)

	FRU	Action
1	Paper	Is recommended paper being used? Advise the customer to use recommended paper.
2	Paper	Is the paper deformed with curls or waves? Replace the paper. Advise the user on the storage method.
3	Paper	Did it occur in the manual feed unit? Check from Step 8.
4	Paper	Did it occur in the cassette feed unit? Check from Step 11.
5	Registration	Is the registration roller clutch operating properly? Check the registration roller clutch.
6	Registration	Is the registration roller worn, deformed or soiled? Clean the roller if it is soiled. If worn or deformed, replace appropriate parts.
7	Prism	Is the paper top sensor prism soiled? Clean it. Replace it if it cannot be cleaned or it is flawed. If it is OK, replace the pickup PCB.
8	OHP sheet	Is dedicated OHP sheet being used, and is it loaded correctly? Advise the user to use dedicated OHP sheet, and to set it correctly.
9	Excessive paper in manual feeding tray	Is more paper in the manual feeding tray than prescribed? Advise the user not to put more than the suggested amount of paper in the tray.
10	Pickup roller Faulty pickup	Does the pickup roller rotate during printing? If yes, replace the pickup roller. If no, see “No Pickup (Manual Feed)”
11	Cassette	Is the cassette set properly? Set it properly.
12	Paper set incorrectly	Is the paper correctly set against the cassette claw? Set it correctly.

	FRU	Action
13	Paper	Is the paper folded? Replace the paper.
14	Excessive paper in cassette	Is more print paper in the cassette than suggested? Advise the user not to put more than the suggested amount of paper in the cassette.
15	Cassette pickup roller, Separation roller, Feed roller, Faulty pickup	Is the cassette pickup roller, the separation roller, or the feed roller worn or deformed? If yes, replace the respective roller. If no, check “No Pickup (Cassette Feed)” on page 2-32 or “No Pickup (Optional Paper Feeder Pickup)” on page 2-32.

Transfer Drum Unit

(Codes 22 - 23, Paper Jam)

	FRU	Action
1	Gripper	Is the gripper damaged? Replace the gripper.
2	Gripper	Does the gripper properly open and hold the paper? Check whether: • The gripper hold-down spring is deformed or disconnected. • The gripper lever is bent. • The operation of the gripper drive mechanism within the transfer drum is smooth. • The gripper solenoid connector is disconnected or the solenoid is defective.
3	Attraction sensor	Check for binds. Refer to “Transfer Drum” on page 7-60, assembly 29-3.
4	Separation sensor	Check for binds. Refer to “Transfer Drum” on page 7-60, assembly 29-3.
5	Attraction roller	If the attraction roller is worn or deformed, replace the attraction roller.
6	Discharge roller	If the discharge roller is worn or deformed, replace the discharge roller.
7	High-voltage contact	If the high-voltage contact of the attraction roller or the discharge roller is soiled or burnt, clean the high-voltage contact. Replace it if it cannot be cleaned.
8	Spring (2 each)	If the springs pressing the attraction roller or the discharge roller against the transfer drum are stretched, or missing, replace the relative spring.
9	Transfer sheet High-voltage power supply PCB	If the transfer sheet is soiled or deformed, replace the transfer sheet. If not, replace the high-voltage power supply PCB. **CAUTION: Do not touch the sheet with your bare hands**.

Fuser/Delivery Unit

(Code 25, Paper Jam)

Note: Printers and replacement FRUs may experience rough handling during shipping, causing the exit sensor (PS9) to be contaminated with oil. As this sensor operates “active low”, the oil may defuse the IR beam enough to prevent correct operation. Therefore, replace PS9.

Use of a spray contact cleaner in most instances will allow normal functioning of the fuser sensors, which have been contaminated with silicone oil. The only cleaner currently approved by Lexmark is CRC brand industrial contact cleaner # 03130. In addition to the cautions on the Material Safety Data Sheet (MSDS) label attached to the can, observe the following guidelines:

- When spraying either fuser sensor (PS9 or PS10), place a piece of absorbent material below the sensor to catch the excess spray.
- Use the supplied nozzle and direct the spray into the small apertures in the inside walls of the sensors.
- Spray quickly (approximately 1 second applications).

This spray leaves no residue, contains no CFCs and is plastic safe. Do Not use a substitute spray that has not been tested and is not plastic safe.

Fuser

	FRU	Action
1	Fuser roller Drive unit	Do the fuser rollers rotate smoothly? Check the fuser roller drive unit.
2	Fuser rollers	Is the fuser upper roller or the fuser lower roller deformed or flawed? If yes, replace them.
3	Fuser entrance guide	Is the entrance guide soiled? Is there a guide protrusion due to a flaw or toner adhesion? Clean the entrance guide.
4	Nip width	Is the fuser roller engagement correct? Replace the fuser unit.
5	Cleaning belt	Is the cleaning belt being wound correctly? Check the fuser cleaner unit.
6	Fuser separation guide	Is the fuser separation guide soiled? Or is there a protrusion due to a flaw or toner adhesion? Clean the guide.
7	Delivery paper sensor lever	Does the delivery paper sensor lever move smoothly? Adjust it so that it moves smoothly.
8	Delivery paper sensor (PS9)	Does the delivery paper sensor operate correctly? Replace the sensor.
9	Oil applying unit Delivery drive unit	Is the fuser delivery roller rotating smoothly? Is the face-down delivery roller rotating smoothly? If yes, check the operation of the oil applying unit. If no, check the delivery drive unit, and replace the damaged part.

Multi-Feed

	FRU	Action
1	Paper	Is recommended paper being used? Advise the user to use recommended paper.
2	Location	Does it occur in the manual feeding tray? Check step 5. (Cassette, check step 4).
3	Cassette	Is the print paper placed properly against the cassette claw? Place the paper correctly.
4	Separation roller Spring(s) *	Is the separation roller worn or deformed? If yes, replace the separation roller. If no, replace the spring(s) pulling the separation roller.
5	Separation pad Spring (see Chapter 7, Asm 25-5)	Is the separation pad surface worn? Replace the separation pad. If no, replace the separation pad spring.

* See “Cassette Paper Pickup Asm” on page 7-48, (Asm 24). These springs are not referenced, but attach to the same plastic assembly that reference number 7 uses.

Wrinkles

	FRU	Action
1	Paper	Is recommended paper being used? Advise the user to use recommended paper.
2	Paper	Do the wrinkles disappear when you use new paper? As the paper probably was moist, advise the user on the correct storage method.
3	Pickup unit	Open the front cover while the paper is between the pickup and fuser units. Is the paper wrinkled? Or is the paper being transported with a skew? Check the pickup unit.
4	Paper guide	Is toner or other foreign matter on the paper guide? Clean the guide.
5	Fuser entrance guide Fuser unit	Is the fuser entrance guide soiled? Clean the guide. If no, replace the fuser unit.

Leading-Edge Fold

	FRU	Action
1	Paper	Is recommended paper being used? Advise the user to use recommended paper.
2	Paper	Is the paper curled or otherwise deformed? Replace the paper. Advise the user on the correct storage method.
3	Excessive paper (manual)	Is more paper placed at the pickup slot than suggested? Advise the user not to place more than the suggested amount of paper.
4	Paper setting (cassette)	Is the paper set properly against the cassette claw? Set the paper correctly.
5	Cassette claw	Is the cassette claw deformed? Replace the cassette claw. If no, check the paper feed unit, and replace any flawed or deformed parts.

Skewing

	FRU	Action
1	Paper	Is recommended paper being used? Advise the user to use recommended paper.
2	Cassette	Is the cassette set properly? Set it correctly.
3	Excessive paper (manual)	Is more paper place at the pickup slot than suggested? Advise the user not to set more than the suggested amount of paper.
4	Paper setting (cassette)	Is the paper set properly against the cassette? Set the paper correctly.
5	Paper setting	Is the paper placed against the manual feeding tray abutment? Properly set the paper on the manual feeding tray.
6	Cassette claw	Is the cassette claw deformed? Replace the cassette claw.
7	Paper dust, trash Registration roller	Is paper dust or trash collected at the registration roller or feed guide? Clean. If no, replace the cassette paper assembly.

Error Codes - 9XX

Error (900) Software Error

	Description	Action
1	This can occur when: • The paper being fed is a different size than selected by the Setup Menu. • Turning the machine off and failing to wait at least 10 seconds before switching it back on.	Feed the correct size paper. After turning the machine off, wait at least 10 seconds before turning back on. Before replacing the video controller board, turn the printer off and firmly reseat the board.

Error (941) Service ROM SIMM

	Description	Action
1	Code/Font	Replace the ROM SIMM.

Error (939, 942, 943, 944) Service RIP Board

	Description	Action
1	29K processor failure	Replace the Video Controller Board.

Error (945) Service RIP Board

	Description	Action
1	ASIC 1 failure	Replace the Video Controller Board.

Error (946) Service RIP Board

	Description	Action
1	ASIC 2 failure	Replace the Video Controller Board.

Error (947) Service RIP Board

	Description	Action
1	ASIC 3 failure	Replace the Video Controller Board.

Error (948) Service RIP Board

	Description	Action
1	Compress/ Decompress failure	Replace the Video Controller Board.

Error (949) Service RIP Board

	Description	Action
1	Decompress failure	Replace the Video Controller Board.

Error (950) Service RIP Board

	Description	Action
1	SRAM failure	Replace the Video Controller Board.

Error (953) Service RIP Board

	Description	Action
1	NVRAM failure	Replace the Video Controller Board.

Error (955) Service Video RAM Error

	Description	Action
1	Video RAM failure	Replace the Video Controller Board.

Error (956) Service L2 Cache Error

	Description	Action
1	L2 Cache error	Replace the Video Controller Board.

Error (960) Service Memory Error

	Description	Action
1	Bad or missing DRAM in the base DRAM slot	Replace the base DRAM.

Error (961) Bad / Missing DRAM

	Description	Action
1	Bad or missing DRAM in the optional DRAM slot	Replace the optional DRAM.

Error (970/979) INI Failure

	Description	Action
1	INA failure	Replace INA.

Error (977) Service Network Board

	Description	Action
1	Bad network board	This error message indicates a bad Network board is installed in the Network board slot. The system processor has detected that an INA board is installed but cannot establish communications with it. The X after the Network Board will identify which network board is having a problem. Network Board 1 always refers to the INA board in the bottom slot and Network Board 2 always refers to the INA board in the top slot.

Print Quality

Before you perform the following service checks, do the following:

- Be sure the paper or transparencies are the recommended finish and weight. If the paper weight is incorrect (too stiff), it may not provide 100% adhesion to the transfer drum. The trailing edge will not be attracted to the drum and will “flap” on each revolution causing blurs and smears at the bottom of the page. This may eventually transfer stray toner on to the back or front of the paper.
- Be sure the printer and supplies are used in the proper environmental range.
- If in doubt about a printer driver or other customer application, use the test prints described in the diagnostic aids.
- Use the following start of call test to determine where the symptom exists.

Cartridge End-of-Life

When printing a large number of pages with a low percentage of color coverage, it is possible for the cartridge to wear out before using all the toner. Regardless of the amount of toner used, the internal rollers must make the same number of revolutions. Maximum cartridge life is approximately 5500 pages. Depending on color usage, it is possible to exceed this limit and still have a large quantity of toner remaining in the cartridge. This condition will lead to streaking and background, which will be covered elsewhere in this service check.

Print Quality Start Of Call

Refer to the Density Adjustment Panel (DAP) section, see “Density Adjustment Panel” on page 3-12. Run the following three tests described on page 3-12. Each test will isolate different print quality conditions as described. Before starting, be sure all color density settings on the DAP are set to nominal.

Gradation Test

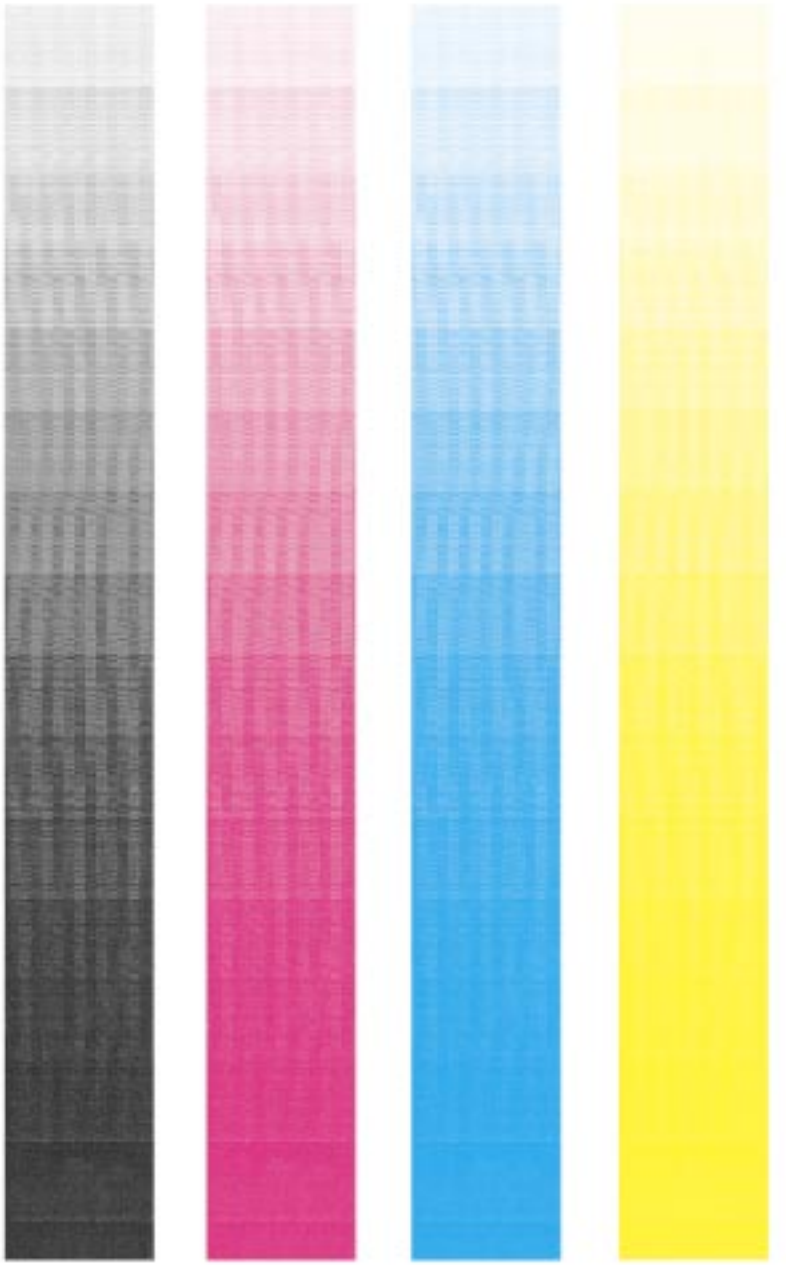
This test shows the presence of horizontal voids. Do not confuse a void (which is a missing laser scan line) with small horizontal variations in density called “jitter”, (see example on following page).

- If voids are present, go to “Horizontal Voids Service Check” on page 2-67.
- If severe “jitter” is visible, replace the affected cartridge, (especially if the “jitter” is greater for one color).
- If the “jitter” is consistent across all four colors, replace the photoconductor.

Note: Some “jitter” normally occurs due to gear train vibrations.

Horizontal Variation (“Jitter”) Example

(Color may vary depending upon your monitor or system.)



Solid Color Test

This test indicates which cartridge(s) is/are contributing to background problems. It also shows which of the four cartridges has reached end-of-life. The test produces a solid band of each color, approximately 2 1/4 inches (60 mm) long. Each color should be a uniform color with no vertical streaks. If streaks are present, replace the cartridge. Cartridges that streak contribute to background.

Solid White Test

This test shows the amount of background. Background is most visible as a white border 5/16 inch (8 mm) from the top edge of the paper. Background is possible in any color (or combination of colors), although it appears gray to the naked eye. Although a worn photoconductor contributes to background, background is primarily due to a cartridge condition. Photoconductor scratches show as a black vertical line.

Print Quality Troubleshooting

Background

Symptom:
A slight tint to the entire page starting approximately 8 mm from the top edge of the page. It may appear to be gray, but could be any combination of primary colors.

Cause:
Cool, dry environments or used cartridges nearing end of life.

Resolution:
Increase environmental temperature and humidity. Replacing all four toner cartridges reduces background, if they are nearing end of life. Call your country support function for assistance prior to replacing parts.

Black Horizontal Lines

Symptom:
Horizontal lines of any length and width across the page repeating at 129 mm intervals.

Cause:
Improper removal or installation of the photoconductor. The drum release arm must be lowered prior to removal or installation of the photoconductor.

Resolution:
Replace the photoconductor.

Black Vertical Lines

Symptom:
Thin vertical black lines of any length, anywhere on the page.

Cause:
Worn out or damaged photoconductor. This may be caused by the photoconductor reaching end-of-life or damage resulting from a severe paper jam.

Resolution:
Replace the photoconductor. Do not use a used photoconductor for diagnostic purposes. The printer determines photoconductor life by its electrical characteristics. Swapping used photoconductors may result in inaccurate photoconductor life, which may result in customer dissatisfaction or a service call.

Blur at Bottom of Page

Symptom:
A horizontal defect approximately 17 mm from the bottom of the page. This defect is composed of vertical streaks, smears or a blur. In severe cases, there may also be a blur 17 mm from the top of the page.

Cause:
Certain weight and composition papers (mostly cotton), are not adhering to the transfer drum. This causes the trailing edge to “flap”, contacting the developer roller in the cartridge or the photoconductor.

Resolution:
Change paper types.

Laser Failures

Symptom:
Jagged test and edges or very fine horizontal lines the entire width of the page. These may occur as blank lines (voids) or as any color. Vertical print may be wavy (see following example).

Cause:
Contaminated (toner) beam detect mirror, or beam detect lens in the printhead, causes the laser to loose sync or power aberration.

Resolution:
Disassemble the printhead and clean the beam detect lens inside the printhead. Also clean the small (10 mm X 10 mm) beam detect mirror, or replace the printhead.

Low Color Coverage or Usage

Note: The following is not a machine condition.

Symptom:
Vertical streaks on the page. See “Vertical Streaks” on page 2-59, for more information.

Cause:
Extended printing using minimal color coverage. The internal mechanisms in the cartridge wear out before the level of toner is depleted.

Resolution:
Replace the cartridge.

Oil Soaking

Symptom:
Certain printers may demonstrate a condition that makes the top (leading) edge of the first page appear to have been dipped in oil. This oil stain is not to be confused with random oil spots. The soaking may be so small as to be unnoticeable, except in certain areas across the leading edge of the page. It may be as severe as covering the top 3/4 of the page. This occurs with printers that are left idle for long periods with “Power Saver” off. The factory default is “Power Saver” ON, set for 30 minutes. This means that the printer will enter power saver mode within 30 minutes after a job prints. Some customers object to this feature, as it requires additional time to heat the fuser prior to printing. This is minimized by setting power saver to the maximum (120 minutes) before the printer cools down.

Resolution:

- Scroll through the menus to “Advanced Setup”, then scroll through to “Power Saver 2”.
- Turn it ON (default OFF). “Power Saver 2” works only with ‘Power Saver” ON. (default). “Power Saver 2” turns on the fuser every 59 minutes, to keep it close to target temperature. This time interval is not adjustable. Early levels of microcode do not have this feature.
- Call your country support function for assistance, prior to replacing parts.

Random Oil Spots on Page

This condition usually occurs following a long idle period or power saver mode.

Symptom:
Random oil spots on paper may cause customer complaints.

Cause:

- Failure of machine to evenly distribute silicon oil over both fuser rollers.
- Oil dissolved in rubber silicon returning to surface.
- Carry out of debris under lower doctor blade.

Resolution:

- Advise the customer to use the fuser cleaning page, accessible from the main menu. **Note:** This does not work coming out of “Power Saver Mode”, it works only on power up.
- If the customer prefers to use a “Power Saver Mode”, advise them to use Power Saver 2 mode. This turns on the fuser every hour.
- Power Saver 2 does not operate unless Power Saver 1 is enabled.
- If maximum printer accessibility is an issue, set Power Saver 1 to 120 minutes.

Spew

See the “Toner Scattered Service Check” on page 2-71, for detailed information regarding spew.

Vertical Streaks

Note: Run the “Gradation Test” from the density adjustment panel.

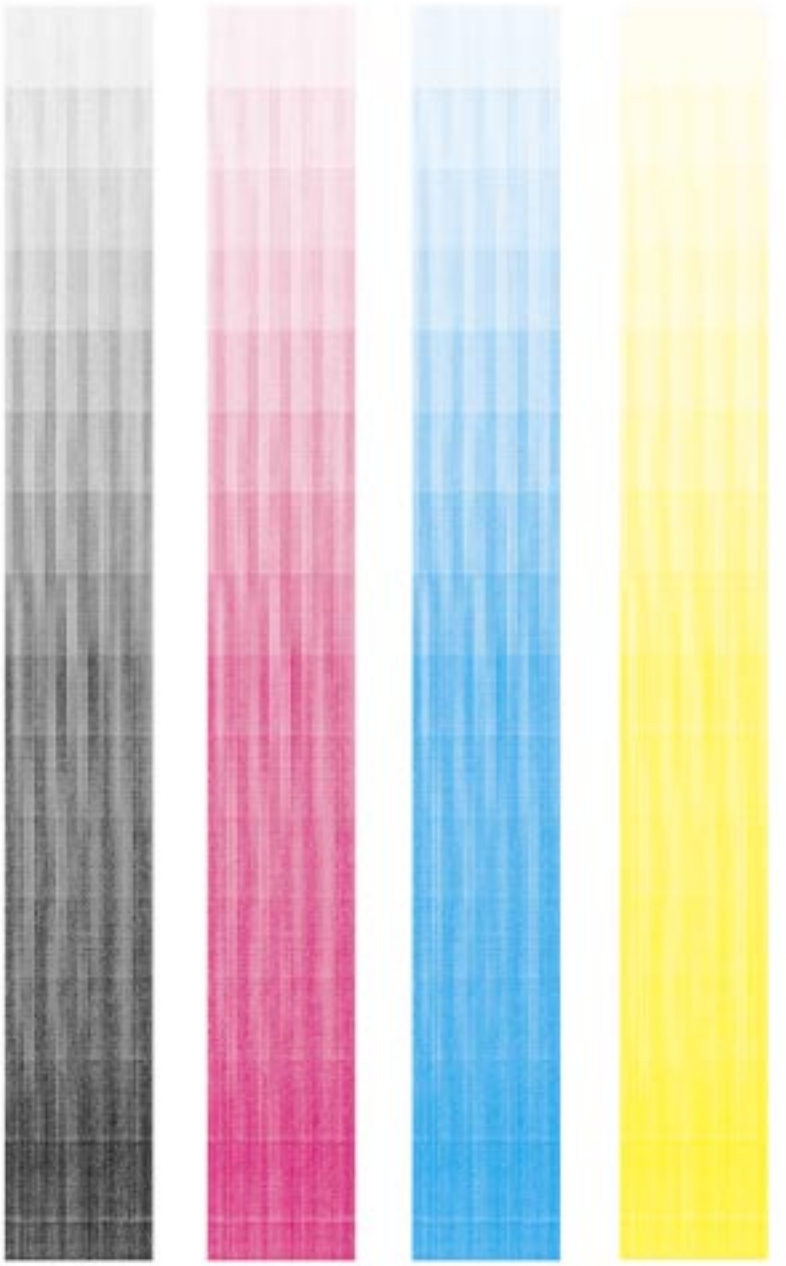
Symptom:
Severe vertical voids in the text, or graphics, (see example on following page). This may occur on a single color, every color, or any combination.

Cause:
Cartridge(s) nearing end-of-life. This condition can occur regardless of the amount of toner remaining in the cartridge. For additional information, see “Low Color Coverage or Usage” on page 2-56.

Resolution:
Replace the affected cartridge(s).

Vertical Streaks Example

(Color may vary depending upon your monitor or system.)



Print Quality Service Checks

Black Service Check

	FRU	Action
1	Photoconductor	Replace the photoconductor. If problem remains, check the primary charging contact spring, the photoconductor contact, the primary charging contact plate and spring.
3	High-voltage cable / resistor	Check the continuity between the photoconductor drum contact and the high-voltage PCB J1004-3. It should be approximately 9K ohms. Replace high-voltage cable or contact if necessary.
4	High-voltage power supply PCB, Mechanical controller PCB	If the problem remains, check and replace as necessary the high-voltage power supply PCB or the mechanical controller PCB.

Blank Page Service Check

	FRU	Action
1	Front cover back panel	Check the shutter open-close boss for damage, replace the front cover back panel if necessary.
2	Laser beam shutter, shutter arm	Check the shutter and the shutter arm for proper operation, replace if necessary.
3	High-voltage cable / resistor	Check the continuity between the developing bias contact plate and the high-voltage PCB J1004-1. It should be approximately 9K ohms. Replace high-voltage cable or contact if necessary.
4	High-voltage power supply PCB, Mechanical controller PCB	Check the toner cartridge contact. If the problem remains, check and replace as necessary the high-voltage power supply PCB or the mechanical controller PCB.
5	Transfer	Check to ensure the transfer drum is free to move up during the print process. This can be done by manually rotating the drum lift mechanism (Asm 19-1).

Blank Spots Service Check

	FRU	Action
1	Paper	Is recommended paper being used? Print with recommended paper. If the outcome is good, ask the user to use recommended paper.
2	Paper	Is the paper damp? Replace the paper.
3	Toner cartridge	Does it appear for a specific color only? Replace the toner cartridge of the color for which it appears.
4	Transfer sheet	Check the transfer sheet for dirt or damage. Replace the transfer sheet. **Caution**: Do not touch the transfer sheet with bare hands.
5	Photoconductor	Check the photoconductor for dirt or damage. Replace the drum cartridge, but only if it is damaged. Do not replace the drum as a troubleshooting technique. If a defect is present on the developer or primary charging roller, it will repeat. Refer to the spacing table.

Color Aberration Service Check

	FRU	Action
1	Gripper Gripper spring	Is the transfer drum gripper damaged or is the gripper spring deformed? Replace the damaged part.
2	Transfer sheet	Is the transfer sheet gouged or torn off? Replace the transfer sheet. **Caution**: Do not touch the transfer sheet with bare hands.
3	Gear Transfer Drum	Is the photoconductor drum gear or the transfer drum gear worn or loose? Check for uniformity or chattering of the transfer drum rotation.

Dark Image Service Check

	FRU	Action
1	Density sensor unit	Operate the density adjustment panel to adjust the density. Clean the density sensor lens. If the problem remains, replace the density sensor unit.
2	High-voltage power supply PCB, Mechanical controller PCB	Clean the transfer drum ground contact and the photoconductor contact. If the problem remains, clean the primary charge contact. If the problem remains, check and replace as necessary the high-voltage power supply PCB or the mechanical controller PCB.

Dirt On Back Of Paper Service Check

	FRU	Action
1	Paper	Paper must be the correct weight, see “Print Quality” on page 2-50.
2	Lower fuser roller Attraction roll Discharge roll Cleaning brush	See “Spacing Table Service Check” on page 2-69 to aid in diagnosing the dirty or failing FRU. Check the cleaning brush is not damaged and there is no paper in the cleaning assembly.
3	Attraction roll and springs Discharge roll and springs High-voltage contacts Charge roll spring	Check the attraction and discharge roll for damage, the high-voltage contacts for dirt or damage and the attraction and discharge roll springs. Replace parts as necessary.
4	Feed guide Fuser entrance guide	Check both guides for dirt or obstructions.
5	Cleaning brush motor	Check the cleaning brush motor connector J55. Check the resistance of the cleaning brush motor. Rotate the brush and take several readings. The resistance should be approximately 40 ohms. Be sure the cleaning brush motor is cammed into the transfer drum at the end of a print cycle and that the cleaning brush motor runs. If the problem remains, replace the mechanical controller PCB.

Dirty Print Service Check

	FRU	Action
1	Fuser cleaning belt	Check the cleaning belt for proper operation and condition. Replace if necessary.
2	Fuser upper roller Photoconductor Toner cartridge Attraction roller	See “Spacing Table Service Check” on page 2-69 to aid in diagnosing the dirty or failing FRU.
3	Poor attraction/ discharge	Is recommended print paper being used? Advise the user to use recommended paper.
4	Poor attraction/ discharge	Is the attraction roller or the discharge roller deformed or soiled? Replace the affected roller.
5	Poor attraction/ discharge	Is the high-voltage contact of the attraction roller or the discharge roller soiled or burnt? Clean the contact. Replace it if it cannot be cleaned.
6	Poor attraction/ discharge	Are the springs pressing the attraction roller or the discharge roller against the transfer drum stretched? Replace the spring(s).
7	Paper	Paper must be the correct weight. Check for soiled paper being used. Clean the feed guide or the fuser entrance guide.
8	Paper path	Check the entire paper path for paper (especially the photoconductor and cleaning brush assembly).

Distortion Service Check

	FRU	Action
1	Poor connection	Is the connection good between DC controller PCB connector J208 and connectors J102, J110 and J111?
2	Laser/scanner unit DC controller PCB	Is the connection good between laser/scanner unit and DC controller connectors J401, J402, J451 and J701? Replace and check in the following order: 1 Laser/scanner unit 2 DC controller PCB, see “DC Controller Board Information” on page 2-2.

Horizontal Voids Service Check

	FRU	Action
1	Photoconductor or toner cartridge	If a white horizontal line appears in a repeating pattern, see “Spacing Table Service Check” on page 2-69 and repair or replace the indicated part.
2	Laser / Scanner unit	If a white horizontal line appears randomly, clean the small 1/4 inch square (10 mm) beam detect mirror in the printhead, or replace the assembly.

Light Image Service Check

Be sure the printer is not installed in an unusually hot or cold environment, see the *User's Reference*. If the problem is with one color, try a new toner cartridge of that color.

	FRU	Action
1	Density sensor unit	Operate the density adjustment panel to adjust the density. Clean the density sensor lens, if the problem remains perform the remaining checks before replacing the density sensor unit.
2	High-voltage cable resistors (approximately 9K Ohms)	Check the continuity between the transfer drum contacts and the high-voltage PCB. Replace the high-voltage cable or the contact if necessary.
3	High-voltage power supply PCB, Mechanical controller PCB	Clean the developer bias contact and the toner cartridge contact. If the problem remains, continue with this service check.
4	High-voltage power supply PCB, Mechanical controller PCB	Check and replace as necessary the high-voltage power supply PCB or the mechanical controller PCB. If the problem remains, replace the transfer sheet.

Poor Fusing Service Check

	FRU	Action
1	Fuser upper roller	Does the defect appear vertical and in a line? Check for flaws on the upper and lower rollers.
2	Fuser lower roller	Is the fuser lower roller soiled? Clean the roller. Replace it if you cannot clean it.
3	Oil applying unit	Is oil uniformly applied to the fuser upper roller? Check the operation of the oil applying unit.
4	Print paper	Print with recommended paper. If the outcome is good, ask the user to use recommended paper.
5	Fuser unit	Fuser nip width cannot be adjusted. Replace the fuser unit.

Spacing Table Service Check

FRU	Defect spacing	Dirt	Blank	Dirt on back	Fusing
Fuser, upper roller	134 mm	X			X
Fuser, lower roller	134 mm			X	X
Photoconductor	129 mm	X			
Developer	50 mm	X	X		
Primary charge roll	38 mm	X	X		
Attraction roll	50 mm	X		X	
Discharge roll	50 mm			X	
Cleaning brush	94 mm			X	

Streaking Service Check

Streaking is described as small particles or streaks pointing downward from multicolored, horizontal lines. It appears as if the lines were “squashed” together. This should not be confused with cartridge streaking.

	FRU	Action
1	Paper Is the paper damp?	Replace the paper.
2	Separation voltage	Is the corona wire broken? Does it improve when you forcibly turn OFF the separation voltage from the density adjustment panel? If the problem remains, go to step 3.
3	Separation charging unit Fuser unit	Replace and check as follows: 1. Separation charging unit 2. Fuser unit
4	Paper Path	Check the entire paper path for debris, especially the photoconductor and cleaning brush assembly.
5	Cleaning brush	Check to ensure the cleaning brush disengages from the transfer drum, at the end of a print cycle.

Toner Scattered Service Check

Note: This condition is also known as “spew”. It appears as a halo around dense characters. This condition is worsened by cool, dry conditions.

	FRU	Action
1	Paper	Is recommended paper being used? Print with recommended paper. If the outcome is good, ask the user to use recommended paper.
2	Separation voltage	Is the corona wire broken? Does it improve when you forcibly turn ON the separation voltage from the density adjustment panel? If the problem remains, go to step 3.
3	Separation charging unit Temperature humidity sensor Fuser unit	If streaking appeared on the print image after performing step 2, replace the paper with a new lot. If the condition remains, replace and check as follows: 1. Separation charging unit. 2. Temperature humidity sensor. 3. Fuser unit.

Note: If a halo is observed surrounding blue characters on the page, instruct the customer to try “Vivid Mode”. See Chapter 7 in the *User’s Reference Manual*.

Vertical Lines Service Check

Note: Also see “Vertical Streaks” on page 2-59.

	FRU	Action
1	Toner cartridge	In which colors do the vertical lines appear? Replace the cartridges of the colors affected. **Note**: This can occur when cartridges are used at very low color coverage percentages, for extended (greater than 4K page) intervals. See “Low Color Coverage or Usage” on page 2-56.
2	Separation corona	Do you see improvement after cleaning the separation wire corona wire?
3	Photoconductor See * below	Remove the photoconductor. Is the circumference of the photoconductor flawed? Replace the photoconductor, only if it is damaged.
4	Fuser unit	Is toner collected near the fuser entrance guide? Replace the fuser entrance guide.
5	Fuser unit	Is the circumference of the fuser upper roller flawed? After eliminating the cause of the flaw, replace the roller.
6	Fuser unit	Is the cleaning belt winding mechanism operating abnormally? Check whether the oil applying mechanism is abnormal.

* It is possible to damage the photoconductor by running large quantities of the same image, containing dense vertical or horizontal lines. This is similar to how a CRT is “burned”, by the same screen, over time. Normally, the output changes sufficiently to prevent this.

Vertical Voids Service Check

	FRU	Action
1	Toner cartridge	Does a white vertical line appear for all colors? Remove the cartridge of the color for which it appears from the printer. Shake the cartridge and put it back in the printer. Replace the cartridge if the line reappears.
2	Separation Corona wire	Does you see improvement after cleaning the separation corona wire?
3	Photoconductor *	Remove the photoconductor. Is the circumference of the photoconductor flawed? Replace the photoconductor, only if it is damaged.
4	Fuser unit	Is the fuser entrance guide soiled? Clean the guide.
5	Fuser unit	Is the circumference of the fuser upper roller damaged? After eliminating the cause of the damage, replace the roller.
6	Fuser unit	Is the cleaning belt winding mechanism operating abnormal? Replace the defective part.
7	Fuser unit	Is the oil applying mechanism abnormal? Replace the defective part.
8	Mirror	Is there dirt or paper dust on the mirror in the laser/ scanner unit? Replace the laser/scanner unit.
9	Foreign matter	Is foreign matter attached to the printer laser emission hole? Check whether parts are making contact while the print paper is winding on the transfer drum.

* It is possible to damage the photoconductor by running large quantities of the same image, containing dense vertical or horizontal lines. This is similar to how a CRT is “burned”, by the same screen, over time. Normally, the output changes sufficiently to prevent this.

3. Diagnostic Aids

This printer has three different methods of running diagnostics.

The printer can run internal diagnostics tests. These tests are in the same format as the other Optra models and are described in this chapter. These tests work in conjunction with the “Power-On Self Test (POST)” on page 2-8.

The printer may be tested without the video controller board. The basic engine test will isolate a failure to either the engine or the video controller board.

If the printer is configured with the optional sheet feeder or any of the internal options, remove the option(s) and run one of the three diagnostic methods to determine where the problem is located.

There are six internal engine tests accessible by the “Density Adjustment Panel” on page 3-12. The tests run with or without the video controller board.

Basic Engine Test

This test eliminates the video controller board as the source of a malfunction.

1. Turn the printer off.
2. Disconnect the controller board by sliding it to the rear 1 inch. The display will not function now.
3. Remove the small access cover on the left side cover.
4. To prevent a short or damage to the machine, use an insulated jumper and jumper pin 8 to pin 3 of connector J109, connecting pin 8 first. See “DC Controller Board Connector Locations (Graphic)” on page 5-18.
5. Turn the printer on, and observe the POST sequence “Power-On Self Test (POST)” on page 2-8. If the printer completes POST, the basic engine is functioning properly.

Diagnostics Mode

To run the printer diagnostic tests, you must put the printer in Diagnostics mode. The Video Controller board must be plugged into the connector board (normal state).

Note: Entering the Diagnostic mode clears NVRAM.

To enter Diagnostics mode:

1. Turn the printer off.
2. Press and hold the Ready and Return buttons while turning the printer on.
3. Release the buttons when [Performing Self Test] is displayed. The printer performs the Power-On Self Test.
4. You can exit Diagnostics mode without a POR by selecting [Reset Printer].

Diagnostics Mode Menu Structure

The following is the Diagnostics mode menu structure, The indented items are submenus available under the main menu items, which are in capital letters on the operator panel. Menu items referring to options will only be present if those options are installed. Menus with more than four items will use [MORE] on the fourth operator panel button to access the next screen of selections.

PRINT TESTS
- Print Test 1
- Print Test 2
- Print Test 3

HARDWARE TESTS
- LCD Test
- Button Test
- Wrap Tests
  - Parallel
  - Serial
- Memory Tests
  - DRAM
  - ROM
  - VRAM
- L 2 Cache Test
- Compressor Test

PAGE COUNTS
- Page Count
- Permanent Page Count

DEVICE TESTS (If Installed)
- Disk Test/Clean
- Quick Disk Test
- Flash Test

PRINTER SETUP
- Defaults

ERROR LOG

RESET PRINTER

Diagnostics Mode Tests

Button Test

To test the operator panel buttons:

1. Enter Diagnostics mode.
2. Select [HARDWARE TESTS].
3. Select [Button Test].
4. Press each button. [Closed] is displayed until the button is released. Then [Open] is displayed.
5. Press Return to return to the Diagnostics mode main menu.

Compressor

This Test allows one time or continuous testing of the Compressor/ Decompress portion of the video controller board.

To test the compressor:

1. Enter Diagnostics mode.
2. Select Compressor Test.
3. Select Single or Continuous.
4. Press Return to return to the Diagnostics mode main menu.

Defaults

Allows setting the following defaults to U.S. or Non-U.S. values.

U.S.	NON U.S.
Letter size paper	A4 paper
Symbol Set Roman-8	Symbol Set PC-850

To set the defaults:

1. Enter Diagnostics mode.
2. Select [PRINTER SETUP].
3. Select [Defaults].
4. Select [U.S.] or [NON U.S.].
5. Press Return to return to the Diagnostics mode main menu.

Disk Test/Clean

This is a 90 minute test that should be performed only on a disk that contains bad data and is therefore unusable.

This test destroys all data on the disk by doing a multi-pass write/ read on every block of the disk. Bad blocks are flagged and removed from use. If over 2000 bad blocks are found, the test stops and the display indicates the disk must be replaced.

A message describing test progress is displayed during the test.

To test or clean the disk:

1. Enter Diagnostics mode.
2. Select [DEVICE TESTS].
3. Select [Disk Test/Clean].
4. Select [CONTINUE] to start the test, or [CANCEL] to return to Diagnostics mode main menu.
5. Select [CANCEL] to interrupt the test.
6. Press Return to return to the Diagnostics mode main menu.

Error Log

The list of the six most recent errors is displayed. The newest error is displayed in position one. In a full log, position six is the oldest error. If more than six errors are received, the oldest error is discarded. If a position is all zeros, not enough errors have occurred to fill up the log to that position. When a new error is received a check is done to see if that error is identical to the last error received. If so, it is not recorded. Identical errors may appear in the log if there were intervening errors.

The following error messages are stored in the error log.

- 20 - 25 Paper Jam
- All 1XX and 9XX messages

To run the error log:

1. Enter Diagnostics mode.
2. Select [ERROR LOG].
3. Select [CLEAR] and then [CONTINUE] to clear the error log.
4. Press Return to return to the Diagnostics mode main menu.

Flash Test

This test causes the file system to write and read data on the flash to test the flash device. This test destroys all data on the flash. The flash is formatted at the end of the test.

To test the flash:

1. Enter Diagnostics mode.
2. Select [DEVICE TESTS].
3. Select [Flash Test].
   The operator panel displays [Passed] or [Failed].
4. Press Return to return to the Diagnostics mode main menu.

LCD Test

To test the operator panel display:

1. Enter Diagnostics mode.
2. Select [HARDWARE TESTS].
3. Select [LCD Test].
4. Select [Single] or [Continuous].
5. The display goes through a continuous sequence of turning pels on and off.
6. Press Return to stop continuous LCD test.
7. Press Return to return to the Diagnostics mode main menu.

Memory Tests

To run the memory test:

1. Enter Diagnostics mode.
2. Select [HARDWARE TESTS].
3. Select [Memory Test].
4. Select either [DRAM], [ROM] or [NVRAM].
5. Select [Single] or [Continuous].
6. The display indicates [PASSED], or [FAILED].
7. Select [CANCEL] to stop continuous memory test.
8. Press Return to return to the Diagnostics mode main menu.

Page Count

To view or set the page count:

1. Enter Diagnostics mode.
2. Select [PAGE COUNTS].
3. Select [Page Count].
4. Choose any number between 0000000 and 9999999 by selecting [Next] to move the cursor under each digit. Select [+] or [-] to select the number you want in each digit.
5. Select [SAVE] to save the page count displayed.

Permanent Page Count

The permanent page count can be only displayed. It cannot be modified or reset by the customer or servicer.

To view or set the page count:

1. Enter Diagnostics mode.
2. Select [PAGE COUNTS].
3. Select [Permanent Page Count].
4. Press Return to return to the Diagnostics mode main menu.

Print Test 1

Print Test 1 generates a two page test. One page is comprised of thin, repeating horizontal lines of each color. The other page consists of the same type of line in a vertical pattern. This test uses paper from tray 1 only.

To run Print Test 1:

1. Enter Diagnostics mode.
2. Select [PRINT TESTS].
3. Select [Print Test 1].
4. Select [Single].
5. Press Return to return to the main Diagnostics mode main menu.

Print Test 2

Print Test 2 generates ten printouts: Four pages of each color at high density, four pages of each color at medium density and two pages of multi color that fade away. All of these can be used to evaluate banding or other print quality problems.

To run Print Test 2:

1. Enter Diagnostics mode.
2. Select [PRINT TESTS].
3. Select [Print Test 2].
4. Select [Single] or [Continuous].
5. Press Return to return to the main Diagnostic main menu.

Print Test 3

This test generates two printouts: These pages differ in density but both have: (machine serial number, software level, page count and amount of RAM).

To run Print Test 3:

1. Enter Diagnostics mode.
2. Select [PRINT TESTS].
3. Select [Print Test 3].
4. Select [Single].
5. Press Return to return to the Diagnostics mode main menu.

Quick Disk Test

This test performs a non-destructive write/read on one block per track on the disk. The test will read one block on each track, save the data, and proceed to write and read four test patterns to the bytes in the block. If the block is good then the saved data will be written back out to the disk.

The Quick Disk Test does not destroy data on the disk; existing data is read and stored prior to the testing of each track, and then rewritten after the track is tested.

To run the Quick Disk Test:

1. Enter Diagnostics mode.
2. Select [DEVICE TESTS].
3. Select [Quick Disk Test].
4. The display will indicate [Test Passed] or [Test Failed].
5. Press Return to return to Diagnostics mode main menu.

Wrap Tests

The Wrap Tests check the circuits used to communicate with the host computer.

To run the Wrap Test:

1. Turn the printer off.
2. Disconnect the interface cable.
3. Install the wrap plug in one of the interface cable connectors.
   - Install P/N 1319128 for the parallel test.
   - Install P/N 1329048 (25-pin) for the serial test.
4. Enter Diagnostics mode.
5. Select [HARDWARE TESTS].
6. Select [Wrap Test].
7. Select [Parallel] for the parallel port or [Serial] for the 25-pin serial port.
8. Select [Single] or [Continuous].
9. Select [CANCEL] to stop continuous.

A [Passed] message indicates the printer connection to the printer cable connector is good.

A [Failed] message indicates a defective video controller board.

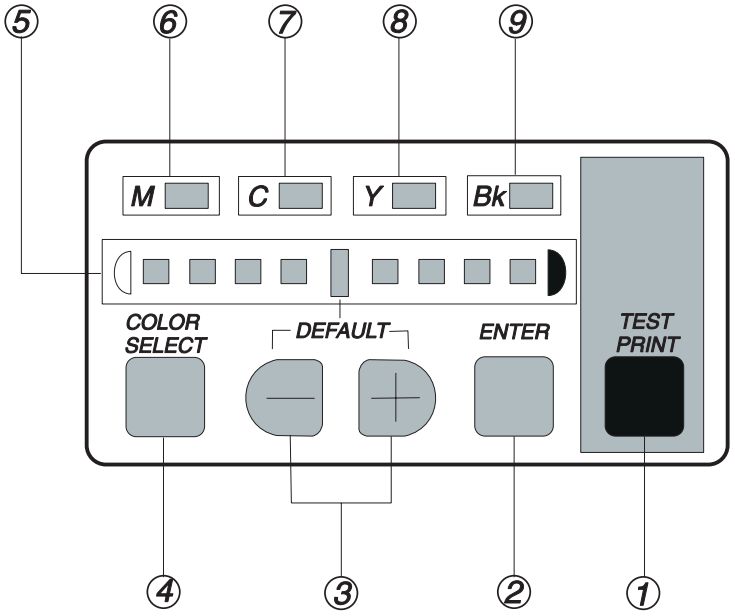
Note: Ignore the number displayed after a failure is displayed.

10. Press Return to return to the Diagnostics mode main menu.
11. Turn the printer off, then remove the wrap plug from the interface connector.

Other Tests

Density Adjustment Panel

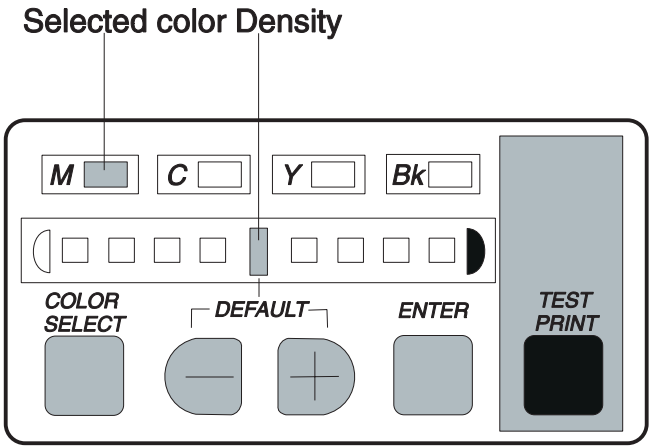
On the rear of the printer, the density adjustment panel is used for density adjustment, test pattern selection, and service technician printer adjustment.



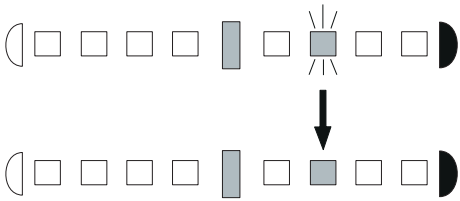
1. **TEST PRINT** key. Press the key to print a test pattern.
2. **ENTER** key. Press the key to input the currently selected value.
3. **+/-** key. Use when changing the density or selecting a print test pattern.
4. **COLOR SELECT** key. Press the key to the desired color to change the density.
5. **Density gauge** Indicates the currently selected color density or test print pattern.
6. **M LED** (COLOR SELECT indicator). Lights when magenta has been selected.
7. **C LED** (COLOR SELECT Indicator). Lights when cyan has been selected.
8. **Y LED** (COLOR SELECT indicator). Lights when yellow has been selected.
9. **Bk LED** (COLOR SELECT indicator). Lights when black has been selected.

Density Adjustment

1. Press the COLOR SELECT key and select the color of your choice. The LEDs light indicating the selected color and that density.



2. Select the density by the + key or - key. When the selected density differs from that currently set in the printer, the Density gauge LED flashes.
3. Save the density by the ENTER key. The Density gauge LED lights and the printer density changes.

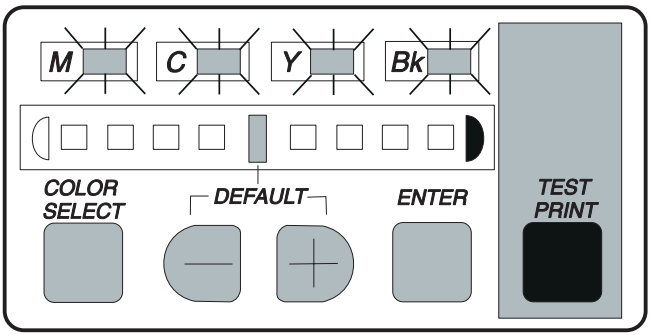


When the printer is turned ON, or the density adjustment panel is not operated for at least 30 seconds, it enters the OFF state. When OFF, the COLOR SELECT LEDs go OFF and only the Density gauge DEFAULT LED (middle) lights if all the colors are set at the factory-shipping value, or otherwise all LEDs will go OFF. If only the + and - keys are pressed for at least 5 seconds, all color densities are initialized to DEFAULT and the panel enters the OFF state.

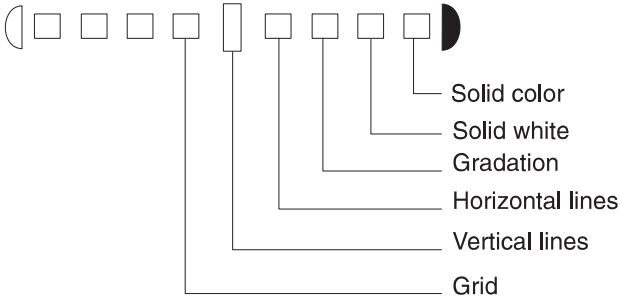
If the individual color densities are changed from the default position, these values will **Not** be lost when the printer is turned off. They must be manually set back to the default value.

Test Pattern Selection

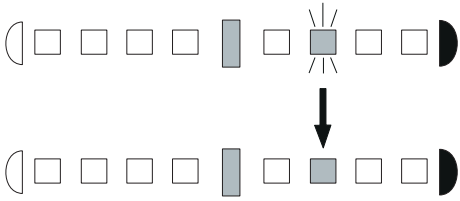
1. Press the ENTER key 8 times while holding down the COLOR SELECT key. All COLOR SELECT LEDs flash to indicate the shift to the test print pattern setting mode:



2. Decide on a test print pattern by using the + key or - key. When the test print pattern differs from that currently selected in the printer, the Density gauge LED will flash. The correspondence between the Density gauge LEDs and each test print pattern is as follows.

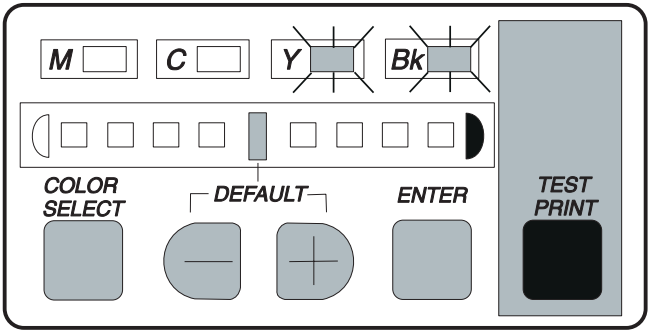


3. Determine the test print pattern by the ENTER key. The Density gauge LED lights and the print test pattern changes.

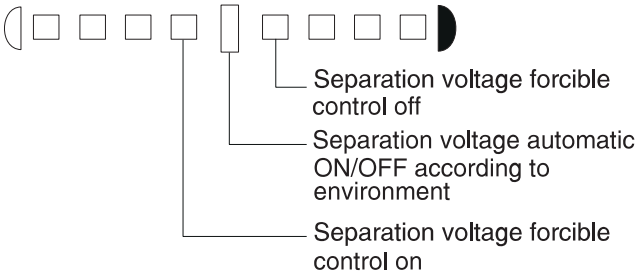


Separation Voltage Control Designation

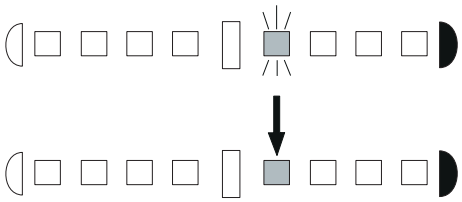
1. While holding down the COLOR SELECT key, press the ENTER key 3 times. The "Y" and "Bk" COLOR SELECT LEDs flash to indicate that the Separation voltage control designation mode has been entered.



2. Select the separation voltage control method by the + key or - key. When the chosen method differs from that currently selected in the printer, the Density gauge LED will flash. The correspondence between the Density gauge LEDs and each separation voltage control method is as follows.

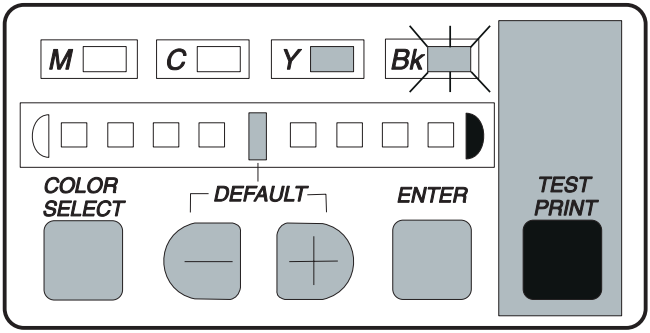

Separation voltage forcible control off
Separation voltage automatic ON/OFF according to environment
Separation voltage forcible control on

3. Determine the separation voltage control method by the ENTER key. The Density gauge LED lights and the printer changes the separation voltage control method.

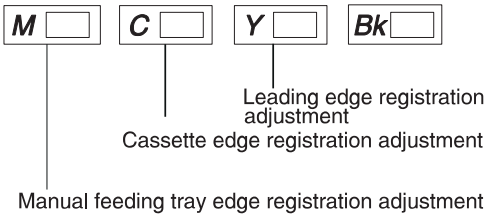


Service Technician Adjustment

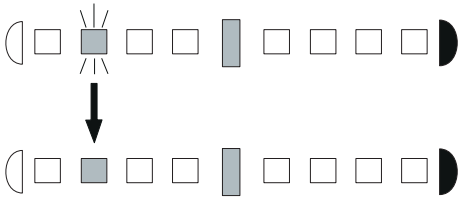
Initialize as the service technician adjustment mode, and that function operates instead of the density adjustment function. At this time, the "Bk" indicator flashes to indicate the service technician adjustment function if the panel is not OFF.



1. Press the power switch while holding down the TEST PRINT key to initialize the service technician adjustment mode.
2. Press the COLOR SELECT key and select an adjustment item. The LEDs for the currently selected adjustment item and that adjustment value flash. The correspondence between the COLOR SELECT LEDs and each adjustment item is as follows.



3. Decide on an adjustment value by using + key or - key. When the adjustment value differs from that currently set in the printer, the Density gauge LED flashes. The relationship between each adjustment item and value is as follows.
   a. For leading edge registration adjustment. The adjustment value changes by 0.3 mm each time the LED is switched by pressing of the + key or - key.
   b. For cassette or manual feeding tray edge registration adjustment. The adjustment value changes by 0.425 mm each time the LED is switched by pressing of the + key or - key.
4. Determine the adjustment value by the ENTER key. The Density gauge LED flashes and the printer adjustment value changes.



When the printer is turned ON, or the density adjustment panel is not operated for at least 30 seconds, it enters the OFF state. When OFF, the COLOR SELECT LEDs go OFF, and only the Density gauge DEFAULT LED (middle) lights if all adjustment values are at the ROM default value, or otherwise all go OFF. Press only the + and - keys for at least 5 seconds to initialize all adjustment values as DEFAULT and the panel enters the OFF state.

LAN Information

The printer may be connected to one of the following LAN types:

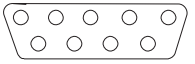
Token-Ring

Ethernet 10BASE-T

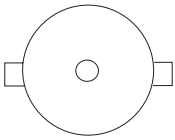
Ethernet 10BASE2

LocalTalk

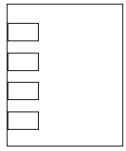
The Network external connectors are shown below. The printer test page also indicates to which type of LAN the printer is connected.



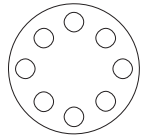
Token Ring



Ethernet 10BASE2



Ethernet 10BASE-T



LocalTalk

4. Repair Information

This chapter contains adjustments and removal procedures. Whenever parts are replaced, make sure that all adjustments are correct by running diagnostics procedures and checking adjustments as needed.

Handling ESD-Sensitive Parts

Many electronic products use parts that are known to be sensitive to electrostatic discharge (ESD). To prevent damage to ESD-sensitive parts, follow the instructions below in addition to all the usual precautions, such as turning off power before removing logic boards:

- Keep the ESD-sensitive part in its original shipping container (a special “ESD bag”) until you are ready to install the part into the machine.
- Make the least-possible movements with your body to prevent an increase of static electricity from clothing fibers, carpets, and furniture.
- Put the ESD wrist strap on your wrist. Connect the wrist band to the system ground point. This discharges any static electricity in your body to the machine.
- Hold the ESD-sensitive part by its edge connector shroud (cover); do not touch its pins. If you are removing a pluggable module, use the correct tool.
- Do not place the ESD-sensitive part on the machine cover or on a metal table; if you need to put down the ESD-sensitive part for any reason, first put it into its special bag.
- Machine covers and metal tables are electrical grounds. They increase the risk of damage because they make a discharge path from your body through the ESD-sensitive part. (Large metal objects can be discharge paths without being grounded.)
- Prevent ESD-sensitive parts from being accidentally touched by other personnel. Install machine covers when you are not working on the machine, and do not put unprotected ESD-sensitive parts on a table.
- If possible, keep all ESD-sensitive parts in a grounded metal cabinet (case).
- Be extra careful in working with ESD-sensitive parts when cold-weather heating is used because low humidity increases static electricity.

Adjustments

Density Adjustment Panel

See “Density Adjustment Panel” on page 3-12.

There are no mechanical adjustments.

Service Information

Releasing Plastic Latches

Many of the parts are held in place with plastic latches. To remove such parts, press the hook end of the latch away from the part to which it is latched.

Screws

This printer is screw intensive. All screws are phillips head. In addition, all parts are pinned, so re-assembly requires no mechanical adjustments. Parts are attached by color-coded screws.

- When a metal part is fastened to another metal part, the screws are silver.
- When plastic is fastened to metal, the screws are gold.
- When plastic is secured to plastic (or metal to plastic) the screws are either black or silver and have self-tapping threads.

As you disassemble the machine, keep each FRU separate and keep the screws for that FRU with the FRU. This will prevent confusion due to different screw lengths.

Removal Procedures

The removals in this section are arranged in alphabetical order.

To install parts, reverse the removal procedure, giving attention to any special conditions listed.

When reinstalling the drive gear solenoid assembly removed in step 9, rotate the main drive motor (M2) counterclockwise after installing the 4 screws. This ensures that all the gears latch up. Rotate the motor until all the gears latch up and the motor turns freely.

Attraction Roller Drive Assembly

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover
2. Remove the left side cover.
3. Remove the rear cover.
4. Remove the EMC shield from the rear of the machine.
5. Open the multipurpose paper pickup door.
6. Release the two green cassette latches and slide the tray out as far as possible.
7. Remove the connector cover (Asm 8-24) and disconnect the connector.
8. Remove the LVPS.
9. Disconnect connector (J2014) from the mechanical controller PCB.
10. Remove the four mounting screws to the drive gear solenoid assembly and remove the assembly. Disconnect the remaining 2 pin connector from the frame.
11. Remove the two screws from the attraction roller drive assembly and remove the assembly.

Cassette Paper Pickup Drive Motor

See Assembly 24-9.

1. Open the multipurpose paper pickup door.
2. Release the two green cassette latches.
3. Slide the cassette out enough to remove the two retaining brackets and remove the cassette assembly.
4. Remove the two screws and the motor drive cover.
5. Remove the wires from the retainer and remove the wire retainer.
6. Tip the cassette back and remove the three bottom cover screws and the cover.
7. Disconnect the motor connector from the PCB.
8. Remove the two motor mounting screws and the motor.

Registration Roller Drive Clutch

See Assembly 24-11.

1. Open the multipurpose paper pickup door.
2. Release the two green cassette latches.
3. Slide the cassette out enough to remove the two retaining brackets and remove the cassette assembly.
4. Remove the two screws and the motor drive cover.
5. Remove the wires from the retainer and remove the wire retainer.
6. Tip the cassette back and remove the three bottom cover screws and the cover.
7. Disconnect the clutch connector from the cable harness.
8. Remove the E-clip and the clutch assembly.

Cassette Paper Pickup PCB

See Assembly 24-13.

1. Open the multipurpose paper pickup door.
2. Release the two green cassette latches.
3. Slide the cassette out enough to remove the two retaining brackets and remove the cassette assembly.
4. Tip the cassette back and remove the three bottom cover screws and the cover.
5. Disconnect the connectors from the PCB.
6. Remove the two connector mounting bracket screws and the bracket.
7. Remove the two PCB screws and the PCB.

Cassette Paper Pickup Assembly

See Assembly 24-1.

1. Open the multipurpose paper pickup door.
2. Release the two green cassette latches.
3. Slide the cassette out enough to remove the two retaining brackets and remove the cassette assembly.
4. Remove the three cassette cover mounting screws.
5. Remove the cover.
6. Remove the two bottom cover trim screws and trim.
7. Remove left pivot plate mounting screw and the pivot plate.
8. Remove the two gear train cover screws and the cover.
9. Disconnect the paper sensor and solenoid connector.
10. Remove the static spring from the right side of lock slide shaft.
11. Remove the E- clip from arm stud and remove the link.
12. Separate the cassette paper pickup assembly from the multipurpose tray assembly.

Cassette Paper Pickup D-rollers

See Assembly 24-2.

1. Open the multipurpose paper pickup door.
2. Release the two green cassette latches.
3. Slide the cassette out enough to remove the two retaining brackets and remove the cassette assembly.
4. Tip the cassette back and remove the three bottom cover screws and the cover.
5. Turn the D-roller shaft until the rubber portion is facing away from you and push the D-roller off the shaft.

Cassette Paper Pickup Roller Assembly, Front

See Assembly 24-8.

1. Open the multipurpose paper pickup door.
2. Release the two green cassette latches.
3. Slide the cassette out enough to remove the two retaining brackets and remove the paper pickup assembly.
4. Remove the front roller assembly mounting screw and remove the roller.

Cassette Paper Pickup Roller Assembly, Rear

See Assembly 24-7.

1. Open the multipurpose paper pickup door.
2. Release the two green cassette latches.
3. Slide the cassette out enough to remove the two retaining brackets and remove the paper pickup assembly.
4. Remove the center screw in the lower guide and remove the roller assembly.

Cassette Paper Pickup Solenoid

See Assembly 24-10.

1. Open the multipurpose paper pickup door.
2. Release the two green cassette latches.
3. Slide the cassette out enough to remove the two retaining brackets and remove the cassette assembly.
4. Remove the two screws and the motor drive cover.
5. Tip the cassette back and remove the three bottom cover screws and the cover.
6. Disconnect the motor connector from J303 and remove the cable from the clamps.
7. Remove the solenoid mounting screw and the solenoid.

Corona Assembly

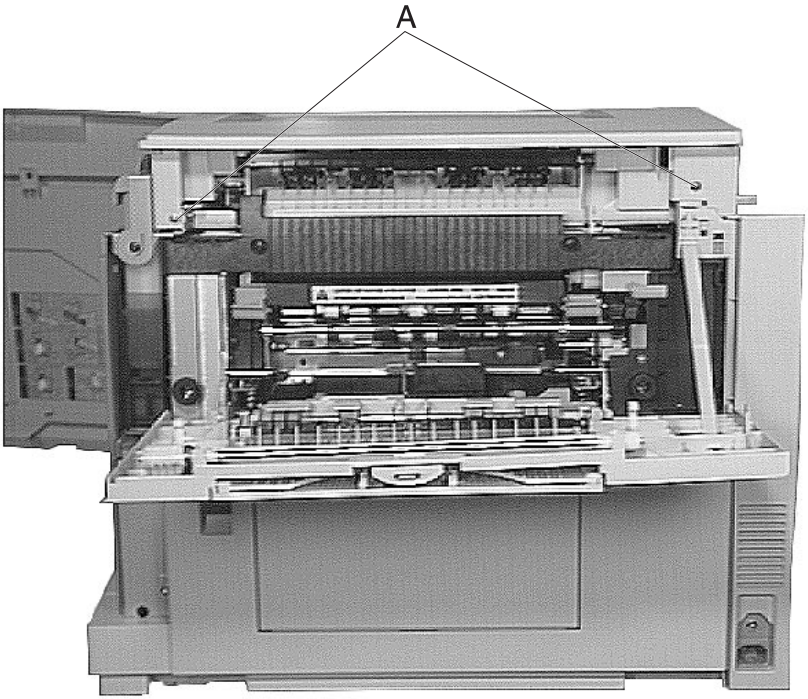
See Assembly 30-5.

1. Open the top cover.
2. Squeeze the latch at the front end of the corona housing, push the corona housing to the rear and lift out.

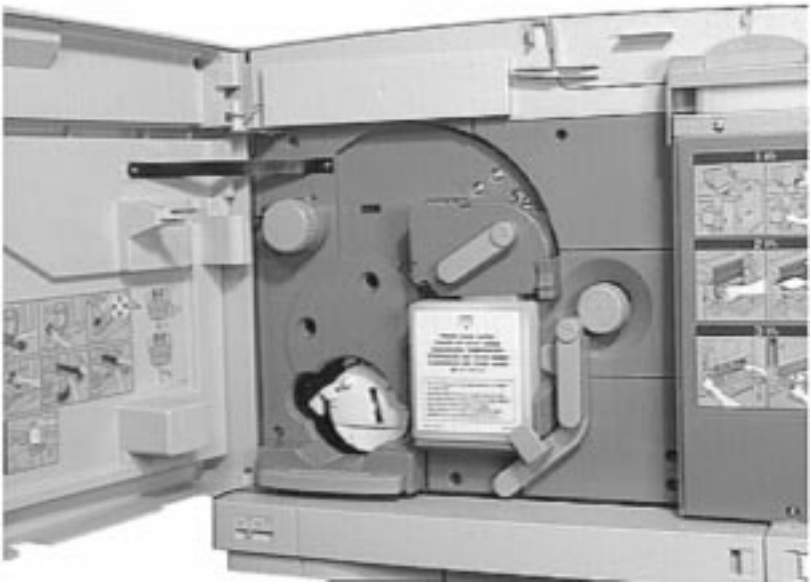
Cover Removals

Remove the power cord before continuing.

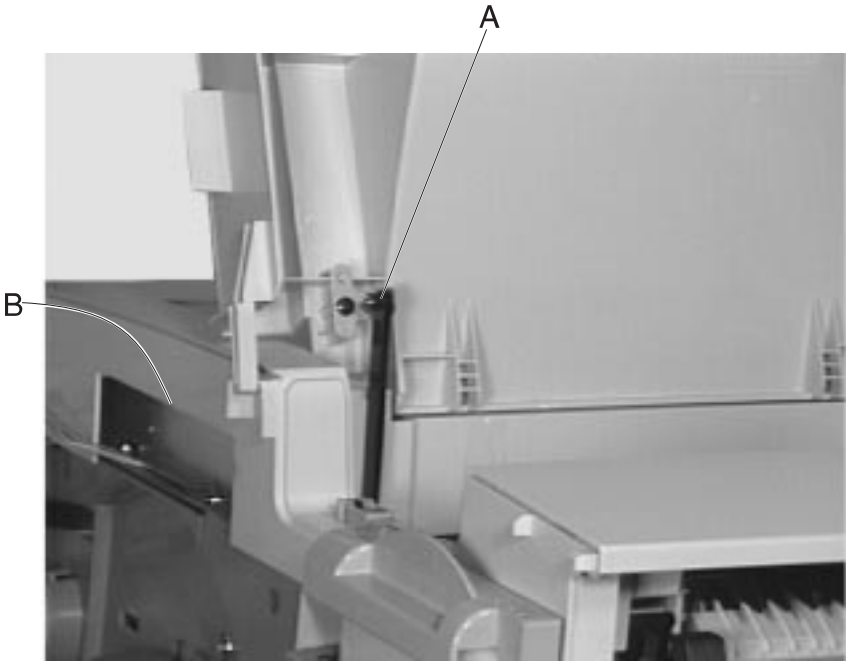
1. Open the fuser door and remove the two screws [A] securing the top cover.



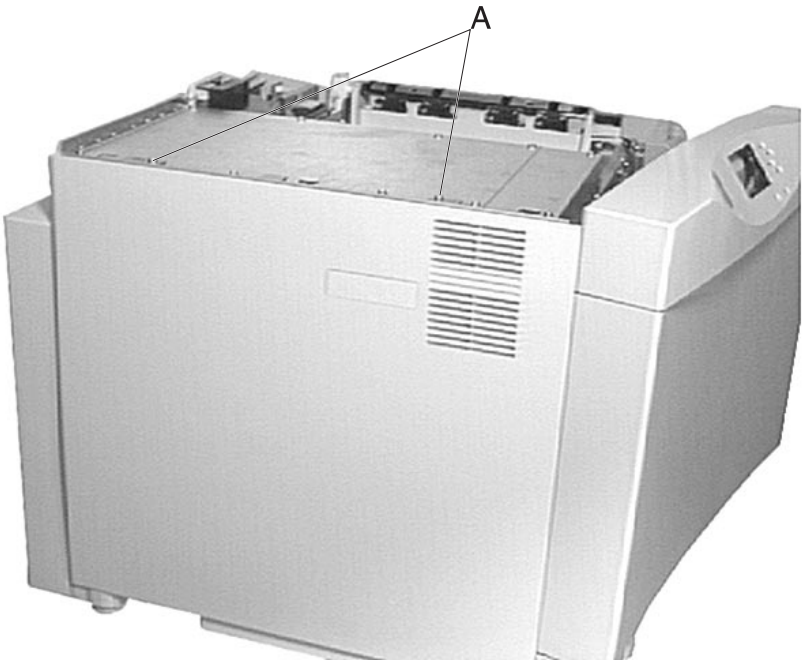
2. Open the front cover and lift the top access cover.



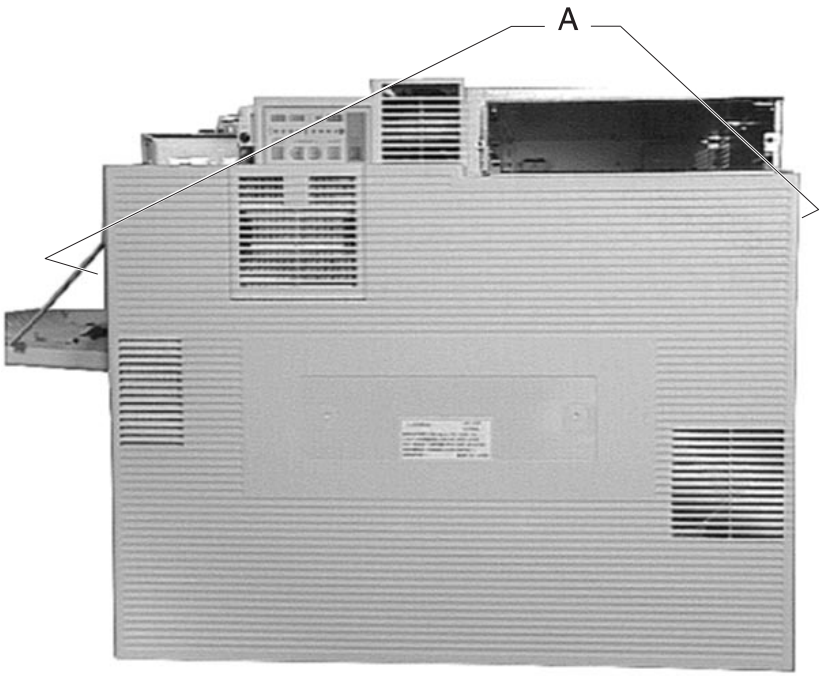
3. With the top access cover raised, unsnap the plastic link [A]. Remove the top cover trim [B]. Remove the top cover by lifting the right side slightly, while moving the top cover to the right.



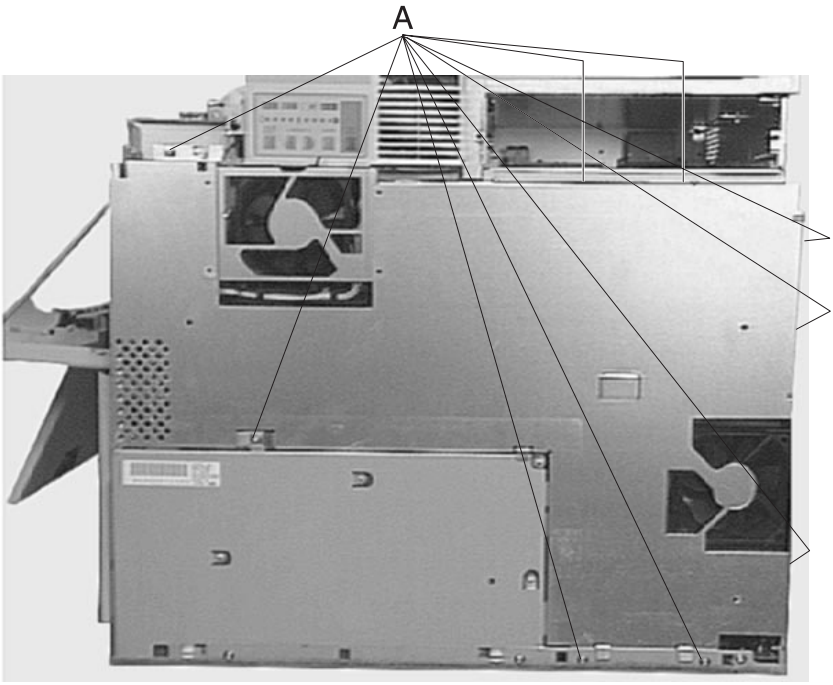
4. Remove the two screws [A] and remove the left cover.



5. Release the two latches [A] and remove the rear cover.



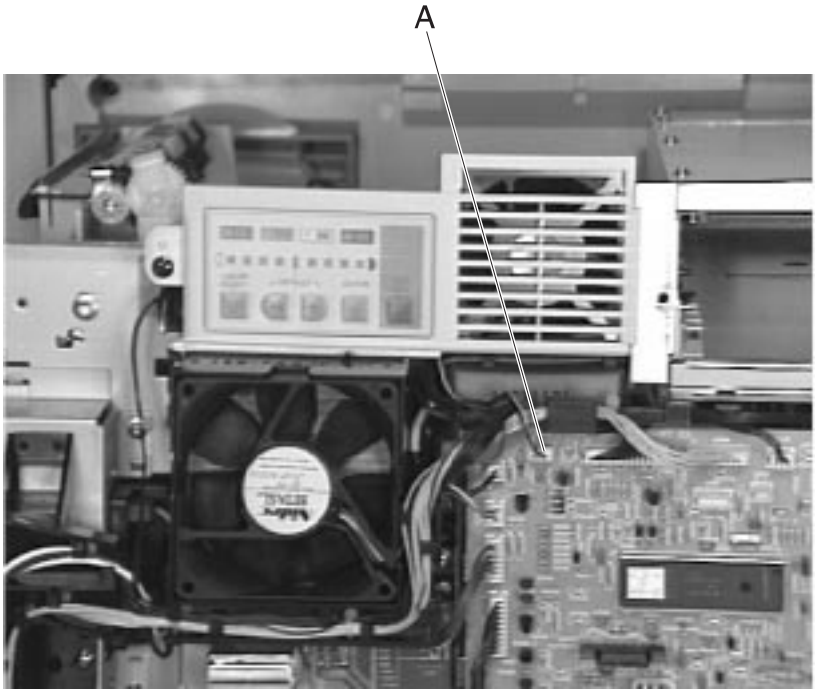
6. Remove the nine screws [A] and remove the EMC shield.



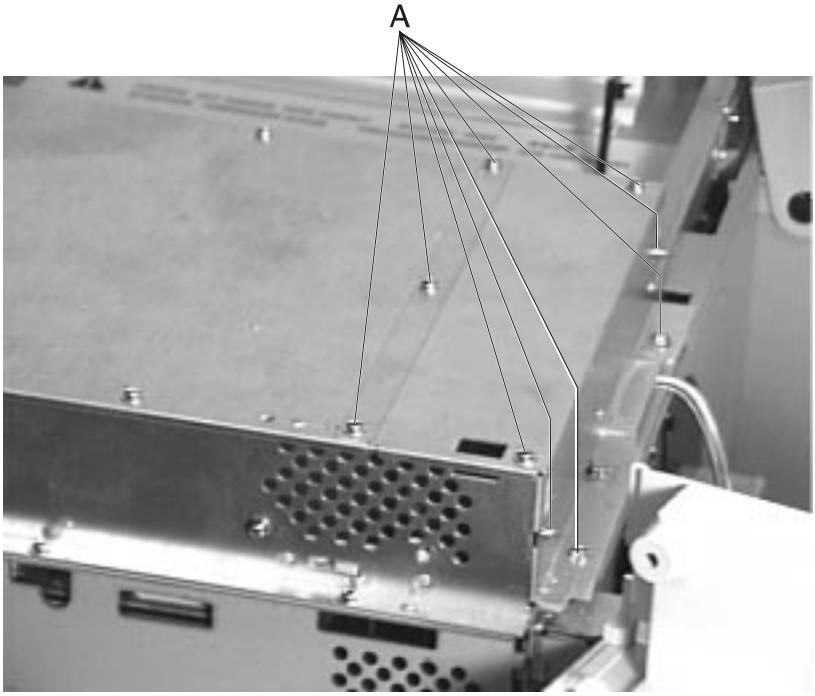
DC Controller PCB

Note: Do not replace this board unless directed to do so by an error code 147 Engine Board IC Failure. Other errors may call for the DC controller to be replaced as part of the ordered FRU replacement.

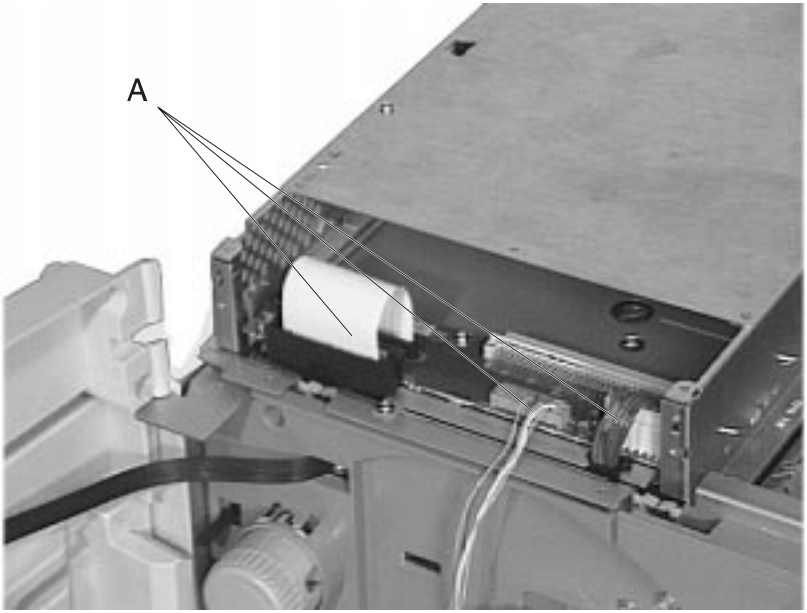
1. Remove the top cover, left cover, rear cover and the rear EMC shield and the video controller board. For cover removals, see “Cover Removals” on page 4-8.
2. Disconnect the fan connector [A] (J2010) from the mechanical controller PCB.



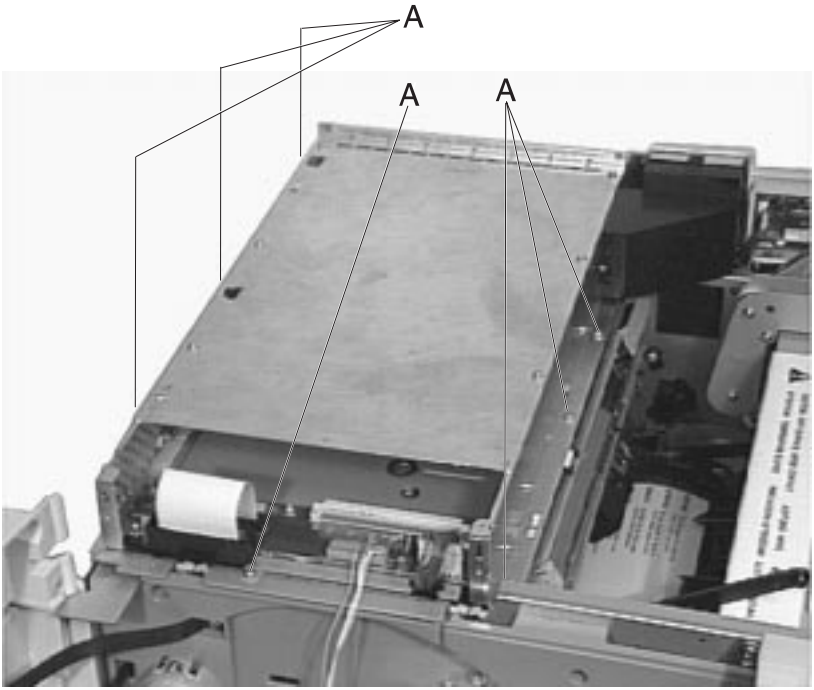
3. Remove the nine screws [A] from the connector board cover (Asm 5-2) and remove the cover.



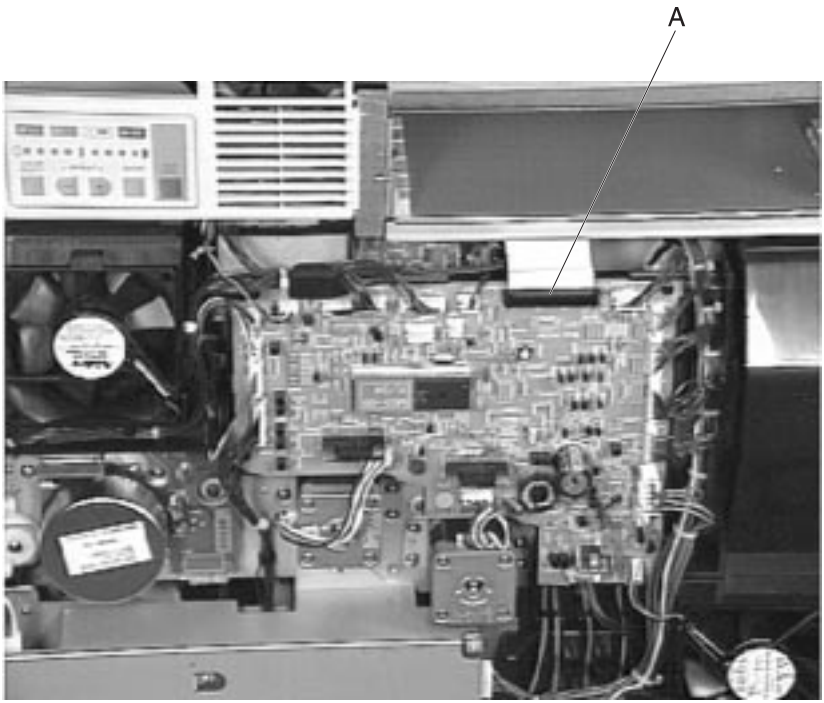
4. Disconnect the three cables [A] from the connector board.



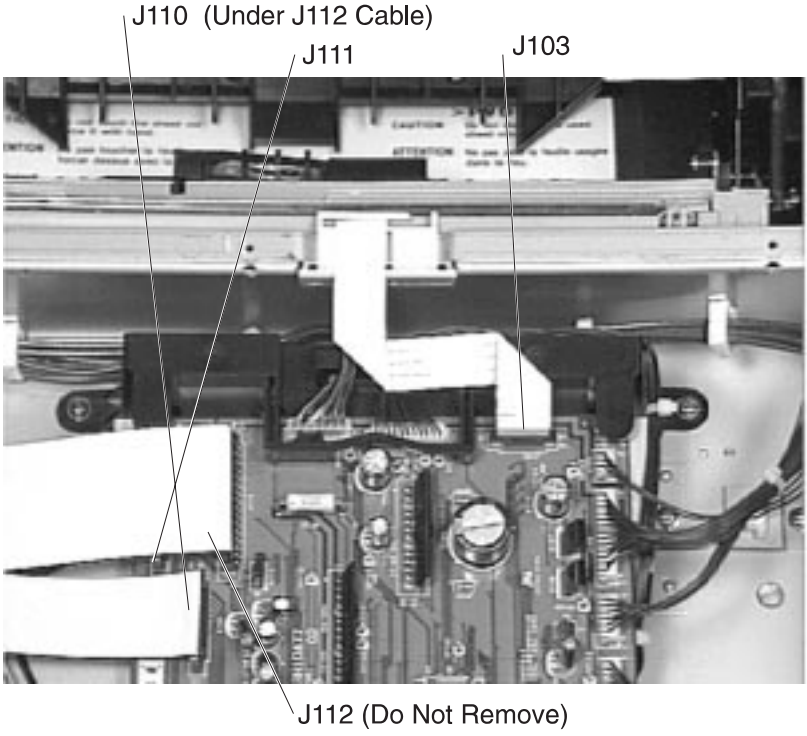
5. Remove the seven screws [A] securing the controller housing to the machine and remove the housing. During reassembly, be sure to thread the flat cable through the toroid before mounting the housing.



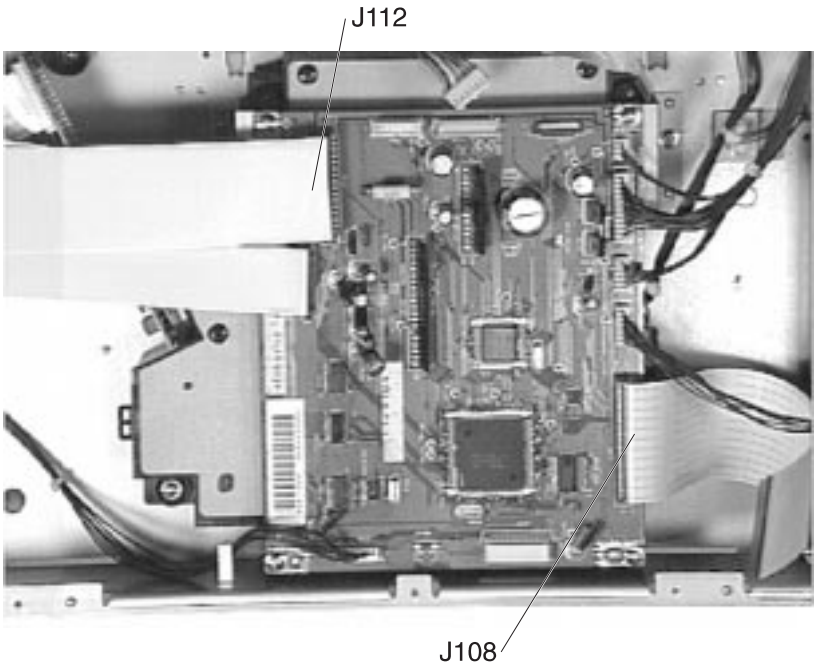
6. Release the ZIF connector [A] (J2007) on the mechanical controller PCB and remove the cable.



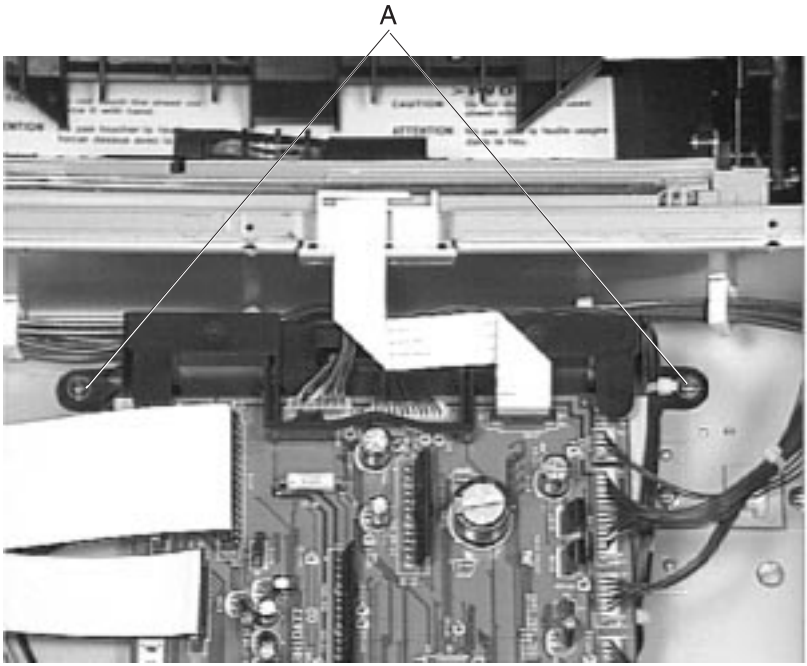
7. Release the ZIF connectors (J103, J110 and J111) on the DC controller PCB and remove the cables. Do not remove J112.



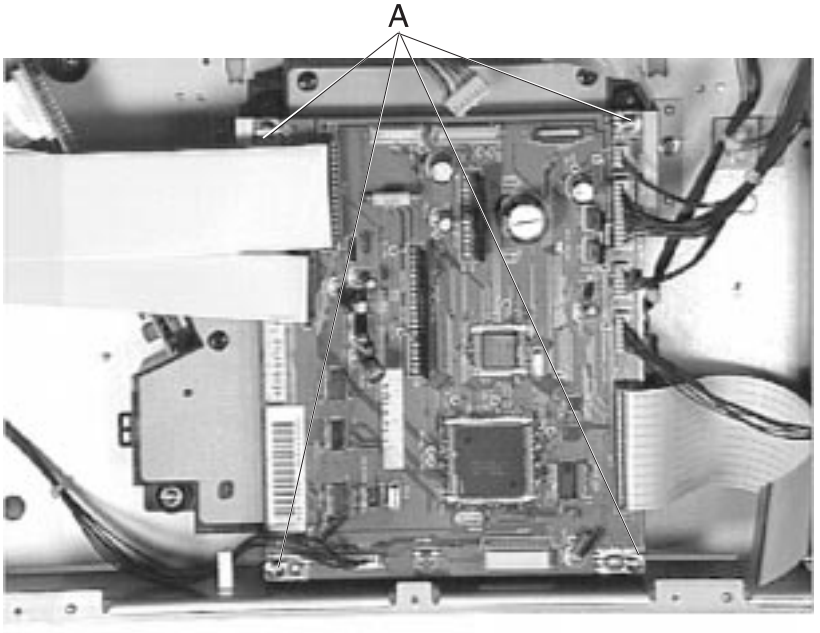
8. Disconnect the remaining cables going to the board. Do not disconnect J108 or J112 unless you are replacing the PCB. These are not ZIF connectors.



9. Remove the two screws [A] securing the cable guard and slide the guard slightly toward the center of the machine and remove it.



10. Remove the four board mounting screws [A] and the board.



Density Adjustment Panel

See Assembly 8-27.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover.
2. Remove the left side cover and the rear cover.
3. Disconnect the wire cable from the density adjustment panel.
4. Remove the screw that retains the fan grill and panel bezel and remove the bezel.
5. Remove the two panel mounting screws and remove the panel.

Density Sensor

See Assembly 30-6.

1. Open the top cover and disconnect the link.
2. Position the sensor so it is facing up and disconnect the springs at the top end.
3. Lower the sensor to unlock the cable connector at the sensor end and disconnect the ribbon cable.
4. Remove the E-clip and slide the sensor assembly forward to remove it from the machine.

Developing Rotary Assembly

See Assembly 27-1.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover.
2. Remove the left side cover and the rear cover.
3. Open the front door and remove the two screws from the operator panel.
4. Disconnect the connector from the operator panel and remove the front cover. Be careful not to damage the hook (Asm 15-3).
5. Remove the four toner cartridges.
6. Remove the EMC shield from the rear of the machine.
7. Disconnect (J1004) from the HVPS.
8. Remove the four mechanical controller PCB mounting screws and the PCB.
9. Disconnect all the cables at the mechanical controller PCB (19 connectors).
10. Remove the lower fan and ducts.
11. Remove the three screws from the mechanical controller PCB mounting bracket and remove the mechanical controller PCB and bracket.
12. Disconnect the sensor at the rear axle of the developing rotary assembly and the sensor directly above it.
13. Remove the three screws and the sensor bracket.
14. Remove the black cartridge press gear.
15. Remove the three screws from the developing rotary shaft rear bearing plate and remove the plate.
16. Remove the five screws from the two front panels and remove the panels.
17. Remove the three screws from the front developing rotary bearing and remove the bearing.
18. Remove the developing rotary assembly from the left side of the machine.

Reassembling Tips:

1. Install the front bearing first. Locate the bearing in position. While applying slight inward pressure to the bearing, rotate the center shaft until the pin in the bearing lines up with the slot in the center shaft.
2. Before installing the sensor bracket, rotate the drum drive gear so the tab is in the 12 o'clock position.
3. Be sure the tabs on the rotary knob are lined up with the slots in the front panel before securing the panel.
4. When installing the ducts, be sure the HVPS wires are separated in the wire guides on this lower duct.

Discharge Roller Drive Assembly

See Assembly 18-1.

For cover removals, see "Cover Removals" on page 4-8.

1. Remove the top cover.
2. Remove the left side cover and the rear cover.
3. Remove the EMC shield from the rear of the machine.
4. Open the multipurpose paper pickup door.
5. Release the two green cassette latches and slide the tray out as far as possible.
6. Remove the connector cover (Asm 8-24) and disconnect the connector.
7. Remove the LVPS.
8. Disconnect connector (J2014) from the mechanical controller PCB.
9. Remove the four mounting screws to the drive gear solenoid assembly and remove the assembly. Disconnect the remaining 2-pin connector from the frame.
10. Remove the two screws from the discharge roller drive assembly and remove the assembly.

Drive Gear Solenoid Assembly

See Assembly 13.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover.
2. Remove the left side cover and the rear cover.
3. Remove the rear EMC shield.
4. Open the multipurpose paper pickup door.
5. Release the two green cassette latches and slide the tray out as far as possible.
6. Remove the connector cover (see Assembly 8-24) and disconnect the connector.
7. Remove the LVPS.
8. Disconnect the 2 pin connector and the J2014 connector from the mechanical controller PCB.
9. Remove the four mounting screws
10. Remove the drive gear solenoid assembly.

Note: When reinstalling this assembly, turn the main drive motor (M2) counterclockwise after installing the 4 solenoid assembly mounting screws, this ensures that all 4 solenoid have latched up their corresponding gears. Turn M2 until all 4 gears are latched up.

Drum Cleaner Assembly

See Assembly 31-1.

1. Open the multipurpose paper pickup door.
2. Release two green latches and slide the paper feeder out as far as possible.
3. Unsnap and remove the small, black plastic cover located at the right side of the cleaning assembly.
4. Disconnect the two pin connector located under the cover.
5. Rotate the latch located on the left side of the cleaner assembly toward you and up 90 degrees.
6. Pull the left side of the cleaning assembly toward you and out of the machine.

Note: When reinstalling this assembly, first insert the two locating pins on the rear end of the assembly into the two holes in the rear frame.

Drum Lift Assembly

Note: This assembly lifts the transfer drum into the photoconductor.

See Assembly 19-1.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the transfer drum assembly.
2. Remove the top cover.
3. Remove the left side cover and the rear cover.
4. Remove the EMC shield from the rear of the machine.
5. Open the multipurpose paper pickup door.
6. Release the two green cassette latches and slide the tray out as far as possible.
7. Remove the connector cover (Asm 8-24) and disconnect the connector.
8. Remove the LVPS.
9. Disconnect connector (J2014) from the mechanical controller PCB.
10. Remove the four mounting screws to the drive gear solenoid assembly and remove the assembly. Disconnect the remaining 2-pin connector from the frame.
11. Remove the two screws from the drum drive assembly and remove the assembly.

Fuser Assembly

See Assembly 32-1.

1. Open the multipurpose paper pick up door.
2. Release two green paper pickup cassette latches and slide the assembly out.
3. Open the fuser access door.
4. Release the fuser access door strap (push down and pull out on the top of the latch and slide up).
5. Pivot the fuser door down until the right hand interlock stud lines up with the keyway fuser bracket and remove the access door.
6. Remove the two screws (captive).
7. Remove the oil bottle.
8. Using the two knobs slide the fuser out as far as the slides will allow and lift off of slide.

   Note: Lift the fuser out slowly and evenly to prevent oil from being spilled. If the fuser is to be changed or moved, the oil must be removed.

   a. Locate the oil suction kit (a suction tool and oil storage bottle) shipped with the printer.
   b. Extract the oil from the oil bottle compartment with the suction tool and put it into the oil storage bottle.
   c. Drain the oil from the fuser oil pan into the oil bottle compartment by pumping the release lever about 50 times.
   d. Repeat steps b and c three or four times.
   e. Put the cap on the oil storage bottle and pack separately. Clean and store the suction tool. To reuse the oil in the storage bottle after you move the printer, pour it back into the oil bottle you were using. Install this bottle in its compartment.

Fuser Oil Bottle Case Assembly

See Assembly 32-7.

1. Remove the fuser assembly.
2. Place the fuser on a flat surface.

Note: Do not tilt the fuser. It contains oil that can spill.

3. Use the hypodermic syringe tool (11A2440) to withdraw the oil from the bottle case. Also remove the square cap from the oil tray and withdraw the oil from the oil tray. Store the oil withdrawn in the oil storage bottle tool (11A2441).
4. Pinch or stop up the tube between the oil bottle case and the oil tray to prevent oil from leaking out.
5. Place the fuser assembly on a shop towel or paper to catch any spilled oil.
6. Remove the two screws from the protective cover and remove the cover.
7. Disconnect the oil return line from the top of the bottle case.
8. Cut the tie off the tube between the oil bottle case and the oil tray and disconnect the tube.
9. Remove the four oil bottle case mounting screws and remove the case from the fuser.

Fuser Hot Rollers

See Assembly 32-12, 32-13.

1. Remove the fuser assembly.
2. Place the fuser on a flat surface.

Note: Do not tilt the fuser. It contains oil that can spill.

3. Follow the steps in the Fuser Lamps Removal procedure and remove the lamps.
4. Remove the fuser oil apply assembly.
5. Remove the screws from the HV mount located at the rear left corner of the fuser and remove the mount.

Note: Do not remove the brown gear mounting bracket. If the bracket is removed for another reason (such as a broken gear), the bracket is difficult to reinstall. The reduced diameter end of the shaft engages a hole in a floating inner plate. This provides proper hot roll pressure engagement. To check for proper installation of this bracket, view the fuser from the input side. The bracket must be vertical. The side play of the brown gear is minimal when the bracket is properly installed.

6. Remove the screw from the lower hot roller grounding terminal located at the front of the fuser and remove the terminal and grounding ring.
7. Remove the grounding ring from the rear of the upper hot roller.
8. Remove the four outer grip rings from the hot rollers (one on each end of the rollers).
9. Slide the gear and bearings off the upper hot roller and remove the roller.
10. Using a grip ring pliers, slide the grip ring on the rear of the lower hot roller back far enough to allow the bearing to clear the plate and remove the lower hot roller.

Note: During reassembly the hot roller pressure springs have to compressed slightly to allow the insertion of the upper hot roller. To do this place a screwdriver blade between the fuser delivery assembly mounting pins and the lower hot roller bearing mounting plates.

Fuser Thermo Switch

See Assembly 32-14.

1. Remove the fuser assembly.
2. Place the fuser on a flat surface.

Note: Do not tilt the fuser. It contains oil that can spill.

3. Remove the two screws from the input guide located on the lower left side of the fuser.
4. Remove the screw from the thermo switch.
5. Disconnect the thermo switch connector and remove the switch.

Note: When reassembling the input guide, make sure the two oil ducts are lined up inside the guide.

Fuser Cleaner Assembly

See Assembly 32-8.

Note: Replace this assembly only if it breaks or malfunctions. When the machine has printed 60,000 pages or less, depending upon the ratio of paper to transparence, the fuser and other items must be replaced in order to maintain maximum print quality.

1. Remove the fuser assembly.
2. Place the fuser on a flat surface.

Note: Do not tilt the fuser. It contains oil that can spill.

3. Remove the two screws from the protective cover and remove the cover.
4. Remove the four screws from the top of the fuser cleaner assembly (two on each side).
5. Remove the two screws from the front and one screw from the rear of the fuser cleaner assembly.
6. Remove the screw from the rear knob and remove the knob.
7. Remove the screw from the shield surrounding the knob and remove the shield.
8. Remove the two screws from the heater/terminal block cover located at the rear of the fuser and remove the cover.
9. Remove the two screws from the terminal block bracket.
10. Take the fuser lamp cables out of the cable holder located at the top right of the fuser.
11. Remove the two screws from the delivery guide located at the top right of the fuser and remove the guide.
12. Lift the fuser cleaner assembly off the fuser.

Fuser Oil Apply Assembly

See Assembly 32-5.

1. Remove the fuser assembly.
2. Place the fuser on a flat surface.

Note: Do not tilt the fuser. It contains oil that can spill.

3. Remove the two extension springs from the fuser oil apply housing (one at the front and one at the rear).
4. Remove the four screws from the oil bottle case assembly and pull the assembly out far enough to remove the screw from the oil apply locator pin.
5. Work the oil apply assembly out of the fuser.

Fuser Thermistor

See Assembly 32-15.

1. Remove the fuser assembly.
2. Place the fuser on a flat surface.

Note: Do not tilt the fuser. It contains oil that can spill.

3. Remove the two screws from the protective cover and remove the cover.
4. Remove the screw from the rear knob and remove the knob.
5. Remove the screw from the shield surrounding the knob and remove the shield.
6. Remove the two screws from the delivery guide located at the top right of the fuser and remove the guide.
7. Remove the two screws from the heater/terminal block cover located at the rear of the fuser and remove the cover.
8. Remove the two screws from the terminal block bracket.
9. Take the fuser lamp cables out of the cable holder located at the top right of the fuse.
10. Remove the four screws from the top of the fuser cleaner assembly (two on each side).
11. Remove the two screws from the front and one screw from the rear of the fuser cleaner assembly and remove the assembly.

Note: Steps 12 through 14 may be skipped if an offset screwdriver is used to remove the screws behind the oil bottle case.

12. Use the hypodermic syringe tool (11A2440) to withdraw the oil from the bottle case. Also remove the square cap from the oil tray and withdraw the oil from the oil tray. Store the oil withdrawn in the oil storage bottle tool (11A2441).
13. Pinch or stop up the tube between the oil bottle case and the oil tray to prevent oil from leaking out.
14. Place the fuser assembly on a shop towel or paper to catch any spilled oil.
15. Remove the four screws from the oil bottle case and remove the case.
16. Remove the screws from lamp wires.
17. Remove the two screws from the copper terminal jumper and remove the jumper from the thermistor block.
18. Open the fuser delivery assembly.
19. Remove the two screws from the thermistor block. Slide the block up and out of the fuser.

Fuser Lamps

See Assembly 32-2.

1. Remove the fuser assembly.
2. Place the fuser on a flat surface.

Note: Do not tilt the fuser. It contains oil that can spill.

3. Remove the two screws from the protective cover and remove the cover.
4. Remove the screw from the rear knob and remove the knob.
5. Remove the screw from the shield surrounding the knob and remove the shield.
6. Remove the two screws from the delivery guide located at the top right of the fuser and remove the guide.
7. Remove the two screws from the heater/terminal block cover located at the rear of the fuser and remove the cover.
8. Remove the two screws from the terminal block bracket.
9. Take the fuser lamp cables out of the cable holder located at the top right of the fuser.
10. Remove the four screws from the top of the fuser cleaner assembly (two on each side).
11. Remove the two screws from the front and one screw from the rear of the fuser cleaner assembly and remove the assembly.

Note: Steps 12 through 14 may be skipped if an off-set screwdriver is used to remove the screws behind the oil bottle case.

12. Use the hypodermic syringe tool (11A2440) to withdraw the oil from the bottle case. Also remove the square cap from the oil tray and withdraw the oil from the oil tray. Store the oil withdrawn in the oil storage bottle tool (11A2441).
13. Pinch or stop up the tube between the oil bottle case and the oil tray to prevent oil from leaking out.
14. Place the fuser assembly on a shop towel or paper to catch any spilled oil.
15. Remove the four screws from the oil bottle case and remove the case.
16. Remove the screws from lamp wires.
17. Using a small screwdriver or a paper clip, remove the white lamp wires from the terminal block. The wire terminal locking clip is on the inside part of the wire terminal.
18. Remove the two screws from the lamp holder located at the rear of the fuser and remove the holder.
19. Slide the lamps out the back of the fuser assembly.

Note: Do not touch the lamps. Body oils can cause the lamp life to degrade.

Fuser Oil Applying Input Assembly

See Assembly 32-4.

1. Remove the fuser assembly.
2. Place the fuser on a flat surface.

Note: Do not tilt the fuser. It contains oil that can spill.

3. Remove the spring from the oil applying input assembly.
4. Remove the E-clip from the oil applying input assembly.
5. Remove the screw from the HV mount located at the rear left corner of the fuser and remove the mount. Do not remove the brown idle gear plate.
6. Remove the screw immediately above the oil applying input assembly and remove the assembly.

Fuser Delivery Assembly

See Assembly 32-6.

1. Remove the fuser assembly.
2. Place the fuser on a flat surface.

Note: Do not tilt the fuser. It contains oil that can spill.

3. Remove the screw from the rear knob and remove the knob.
4. Remove the screw from the shield surrounding the knob and remove the shield.
5. Remove the fuser delivery assembly bias spring.
6. Remove the screw from the pin bracket at the rear of the fuser delivery assembly.
7. Back out the pin and lift the fuser delivery assembly out of the fuser.

High Voltage Power Supply

See Assembly 2-26.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover.
2. Remove the left side cover and the rear cover.
3. Remove the EMC shield.
4. Open the multipurpose paper pickup door, release the two green latches and slide the tray out as far as possible.
5. Remove the connector cover (8-24) and disconnect the connector.
6. Remove the LVPS.
7. Disconnect the four lower power supply connectors.
8. Remove the screw that secures the ground strap.
9. Remove the two HVPS mounting screws and remove the HVPS.

High Voltage Converter

See Assembly 3-16.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover.
2. Remove the left side cover and the rear cover.
3. Remove the EMC shield from the rear of the machine.
4. Remove the mechanical controller PCB and its mounting bracket.
5. Remove the upper fan and fan duct.
6. Remove the three screws mounting the leads to the HV converter.
7. Remove the mounting screw from the HV converter.
8. Slide the converter to the left and out of the machine

Low Voltage Power Supply

See Assembly 7-4.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover.
2. Remove the left side cover and the rear cover.
3. Remove the EMC shield from the rear of the machine.
4. Open the multipurpose paper pickup door, release the two green latches and slide the tray out as far as possible.
5. Remove the connector cover (Asm 8-24) and disconnect the connector.
6. Disconnect the six connectors from the power supply. (The larger power supply connectors have a latch that must be depressed in order to disconnect them.)
7. Remove the five power supply mounting screws.

Main Drive Motor and Board

See Assembly 7-6.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover.
2. Remove the left side cover and the rear cover.
3. Remove the EMC shield from the rear of the machine.
4. Disconnect J2013 from the mechanical controller PCB.
5. Remove the four mounting screws and the motor/ board assembly.

Mechanical Controller PCB

See Assembly 7-32.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover.
2. Remove the left side cover and the rear cover.
3. Remove the EMC shield from the rear of the machine.
4. Disconnect all connectors (19) on the mechanical controller PCB. (There is a ZIF connector (J2007) on top that must be properly unlatched).
5. Remove the four board mounting screws and the board.

Multipurpose Feeder Paper Pickup, D-Roller

See Assembly 25-3.

1. Open the multipurpose paper pickup door.
2. Slide the tray out as far as possible.
3. Remove the D-roller shield.
4. Remove the D-roller clip and the D-roller.

   Note: When installing a new D-roller, the flat of the hole should be facing out to the end of the shaft.

Multipurpose Feeder Paper Sensor

See Assembly 25-9.

1. Open the multipurpose paper pickup door.
2. Slide the tray out as far as possible.
3. Remove the screw and the solenoid cover.
4. Remove the sensor mounting screw.
5. Disconnect the cable from the sensor.
6. Remove the sensor flag.
7. Unlatch the sensor mounting clips and remove the sensor from the mounting plate.

Multipurpose Feeder U-Turn Roller Assembly

See Assembly 25-6.

1. Open the multipurpose paper pickup door.
2. Release the two green cassette latches.
3. Slide the tray out as far as possible.
4. Remove the screw and the gear train cover.
5. Remove the gear from the right side of the U-turn roller shaft.
6. Remove the spring and bellcrank from the shaft.
7. Remove the E-rings and bearings from the U-turn roller shaft and remove the U-turn roller assembly.

Multipurpose Feeder D-Roller Solenoid

See Assembly 25-8.

1. Open the multipurpose paper pickup door.
2. Release the two green cassette latches.
3. Slide the tray out as far as possible.
4. Remove the screw and the gear train cover.
5. Disconnect the solenoid connector.
6. Remove the screw and the solenoid.

Paper Delivery Assembly

See Assembly 26-1.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover.
2. Open the fuser access door.
3. Remove the connector from the front of the paper delivery assembly.
4. Remove the screw from the paper drive assembly and remove the assembly.
5. Pull up on the rear of the paper delivery assembly and slide the assembly to the rear out of the frame.

Note: Take care when working around the sensor and the flag on the front of the paper delivery assembly. The sensor signals the printer it is time for the 60K maintenance.

Printhead and Printhead Board

See Assembly 6-2.

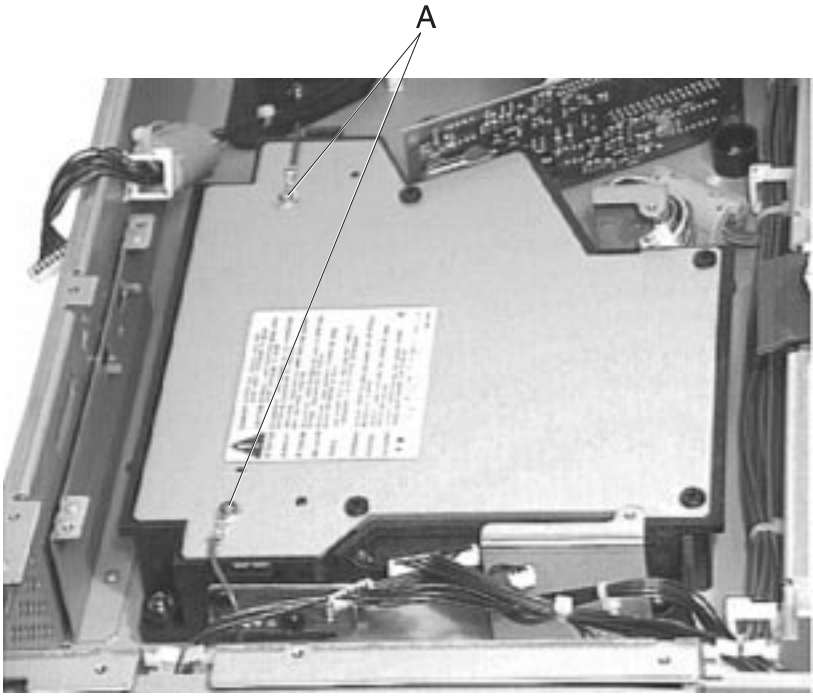
For cover removals, see “Cover Removals” on page 4-8. Also see “DC Controller PCB” on page 4-14.

1. Remove the top cover.
2. Disconnect the fan connector (J2010) from the mechanical controller PCB.
3. Remove the nine screws from the connector board cover (Asm 5-2) and remove the cover.
4. Disconnect the three cables from the connector board.
5. Remove the seven screws securing the controller housing to the machine and remove the housing.

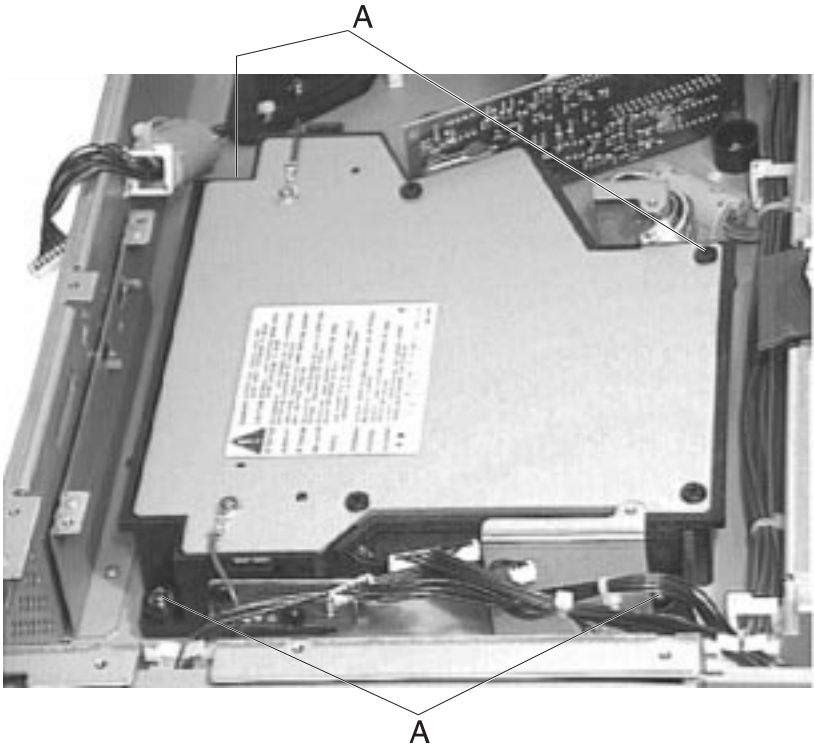
Note: During reassembly, be sure to thread the flat cable through the toroid before mounting the housing.

6. Release the ZIF connector (J2007) on the mechanical controller PCB and remove the cable.
7. Release the ZIF connectors (J103, J110 and J111) on the DC controller PCB and remove the cables.
8. Disconnect the remaining cables going to the board. Do not disconnect J108 or J112, these are not ZIF connectors.
9. Remove the two screws securing the cable guard and slide the guard slightly toward the center of the machine and remove it.
10. Remove the four board mounting screws and the board.

11. Remove the screws [A] from the two grounding straps.



12. Remove the four printhead mounting screws [A] and lift the printhead out of the machine.



Printer Drive Assembly

See Assembly 16-1.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover.
2. Remove the left side cover and the rear cover.
3. Remove the EMC shield from the rear of the machine.
4. Remove the mechanical controller PCB and its mounting bracket *****.
5. Remove the LVPS.
6. Remove the upper fan and fan duct.
7. Remove the HV converter. To remove the converter, remove the 3 screws from the leads and remove the converter mounting screw. Slide the converter to the left out of the machine.
8. Remove the four screws securing the main drive motor and board assembly and remove the assembly.
9. Remove the paper exit drive assembly.
10. Remove the six silver screws from the printer drive assembly. Do not remove the black screw.

Note: When reinstalling the drive assembly, make sure it fits flush on the rear frame. Check the bottom of the assembly and ensure there is not an air gap. The LED assembly must fit through it’s hole in the rear of the frame.

*** Note:** When reinstalling the mechanical controller PCB mounting bracket, be sure all four copper contacts are touching their contact points. Be sure to get the two top latches properly engaged.

Rotary Manual Feed Assembly

See Assembly 15-1.

For cover removals, see “Cover Removals” on page 4-8.

1. Open the top cover and the front cover.
2. Remove the left side cover and rear cover.
3. Remove the EMC shield from the rear of the machine.
4. Disconnect J1004 from the HVPS.
5. Remove the lower fan and ducts.
6. Remove the mechanical controller PCB.
7. Remove the 3 screws and work the mechanical controller PCB mounting base up and out of the machine.
8. Remove the set screw and knob from rotator.
9. Remove the 4 rotator assembly mounting screws and pull the assembly out the back of the machine.

Rear Cooling Fan

See Assembly 7-7 and 7-8.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover.
2. Remove the left side cover and the rear cover.
3. Remover the EMC shield form the rear of the machine.
4. Disconnect the fan connector at the mechanical controller PCB.
5. Release the 2 latches on the duct work that secures the fan and pull straight out.

Rear Cooling Duct

See Assembly 7-2 and 7-3.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover.
2. Remove the left side cover and the rear cover.
3. Remove the EMC shield form the rear of the machine.
4. Disconnect the lower fan connector from the mechanical controller PCB.
5. Disconnect J1004 from the HVPS.
6. Remove the top duct screw.
7. Unsnap the outer portion that mounts the fan from the inner. There are 4 latches that hold these halves together.
8. With the outer portion removed, remove the lower duct mounting screw.
9. Lift the inner duct slightly until the mounting tabs clear the slots in the frame and remove the duct.

Transfer Drum Motor and Developer Drive Motor

See Assembly 16-6 and 16-7.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover.
2. Remove the left side cover and the rear cover.
3. Remove the EMC shield from the rear of the machine.
4. Unplug the motor connector from the mechanical controller PCB.
5. Remove the 4 mounting screws and the motor.

Transfer Drum and Holder Assembly

See Assembly 29-1.

Note: This procedure removes the transfer drum assembly from the transfer drum holder assembly.

1. Remove the transfer drum and holder assembly.
2. Remove the 4 screws from the two transfer drum holder covers and remove the covers.
3. Remove the screw from the drum knob assembly and remove the knob.
4. Remove the spring and three screws from the separation claw and remove the claw.
5. Remove the two springs from the attraction roller holder.
6. Remove the connector shield from the back of the holder front plate.
7. Disconnect the three connectors in the holder front plate.
8. Remove the two screws from the waste toner cartridge lock bracket located on the transfer drum holder front plate and remove the bracket.
9. Remove the extension spring from the transfer drum holder rear plate.
10. Remove the front and rear levers from the transfer drum holder plates. The rear lever is mounted to a stud in the plate. The front lever is mounted with a pin. Remove the screw from the pin and remove the pin.
11. Remove the two screws from the pin located at the bottom right corner of the transfer drum holder front plate and remove the pin.
12. Lift the transfer drum assembly out of the transfer drum holder assembly.

Transfer Drum Separation Claw

See Assembly 29-6.

1. Remove the transfer drum and holder assembly.
2. Remove the spring from the separation claw.
3. Remove the three screws from the separation claw and remove the claw.

Note: During reassembly, place the solenoid link in the claw before installing the claw on the drum.

Transfer Drum Knob Assembly

See Assembly 28-5.

For cover removals, see “Cover Removals” on page 4-8.

1. Open the front cover.
2. Remove the 4 screws from the two transfer drum holder covers and remove the covers.
3. Remove the screw from the drum knob assembly and remove the knob.

Transfer Drum Attraction Roller

See Assembly 28-9.

1. Remove the transfer drum and holder assembly.
2. Remove the spring at each end of the attraction roller holder.
3. Remove the screw from the attraction roller mounting pin located on the lower left corner of the transfer drum holder front plate and remove the pin.
4. Remove the attraction roller holder from the transfer drum holder.
5. Place a screwdriver blade through the holes in each end of the attraction roller holder and push the attraction roller out of the holder.
6. Remove the guide roller from each end of the attraction roller.

CAUTION: Do not touch the attraction roller with your bare hands.

Transfer Drum Sheet

See Assembly 28-8.

1. Remove the transfer drum and holder assembly.
2. Remove the two springs from the attraction roller holder.
3. Remove the two springs from the discharge roller holder.
4. Remove the two extension springs holding the one end of the transfer drum sheet to the transfer drum.
5. Rotate the drum while peeling the sheet off the drum surface.
6. Remove the two screws from the gripper springs and remove the springs and holders.
7. Remove the sheet from the drum.
8. Use alcohol to clean the surface where the two-sided tape was applied to the gripper assembly.
9. Use cotton gloves to handle the replacement transfer sheet.
10. When mounting the transfer sheet, make sure the holes in the sheet mount securely in the 3 designated projections of the gripper assembly.
11. Make sure the transfer sheet does not slack or float in the center or at the edges.

Transfer Drum Front and Rear Slide Assemblies

See Assembly 28-2, 28-4.

1. Remove the transfer drum assembly.
2. Remove the two screws from the front or rear slide assembly and remove the slide.

Transfer Drum Discharge Roller

See Assembly 29-12.

1. Remove the transfer drum and holder assembly.
2. Remove the spring at each end of the discharge roller holder.
3. Place a screwdriver blade through the holes in each end of the discharge roller holder and push the discharge roller out of the holder.
4. Remove the nylon guide roller from each end of the discharge roller.

CAUTION: Do not touch the discharge roller with your bare hands.

Transfer Drum HV Contact Assembly

See Assembly 28-3.

1. Remove the transfer drum assembly.
2. Remove the screw from the attraction roller mounting pin located on the lower left corner of the transfer drum holder front plate and remove the pin.
3. Remove the attraction roller holder from the transfer drum holder.
4. Remove the three screws from the HV contact assembly and remove the assembly.

Transfer Drum Gripper Assembly

See Assembly 29-2.

Note: Also order a transfer sheet, since damage to the sheet may occur when removing it from the gripper assembly.

1. Remove the transfer drum and holder assembly.
2. Remove the two springs from the attraction roller holder.
3. Remove the two springs from the discharge roller holder.
4. Remove the two extension springs holding the one end of the transfer drum sheet to the transfer drum.

Note: Use cotton gloves to handle the transfer sheet.

5. Rotate the drum while peeling the sheet off the drum surface.
6. Remove the two screws from the gripper springs and remove the springs and holders.
7. Remove the sheet from the drum.
8. Pry off the two round plastic screw caps from the gripper assembly.
9. Remove the two screws from the gripper assembly and remove the assembly from the drum.

Note: When reassembling, be sure the extension on the gripper rod is under the roller inside the drum.

Transfer Drum Solenoid

See Assembly 29-5.

1. Remove the transfer drum and holder assembly.
2. Remove the two springs from the attraction roller holder.
3. Remove the two springs from the discharge roller holder.
4. Remove the two extension springs holding the one end of the transfer drum sheet to the transfer drum.

Note: Use cotton gloves to handle the transfer sheet.

5. Rotate the drum while peeling the sheet off the drum surface.
6. Pry off the two round plastic screw caps from the gripper assembly.
7. Remove the two screws from the gripper assembly and lay the assembly back. Do not remove the transfer sheet from the gripper assembly. Also, be careful to not damage the transfer sheet.
8. Rotate the drum to expose the solenoid connector and disconnect the connector.
9. Rotate the drum to expose the solenoid mounting screws. Remove the two screws from the solenoid and remove the solenoid from the drum.

Transfer Drum Sensors

See Assembly 29-3.

Note: This sensor is used in two places on the transfer drum assembly. One of the sensors is on the inside of the drum and one on the outside of the drum. To remove the sensor on the inside of the drum, follow the removal procedure to remove the transfer drum solenoid (Asm 29-5) and remove the sensor. To remove the sensor from the outside of the drum, use the procedures that follow:

1. Remove the transfer drum and holder assembly.
2. The sensor is located in the middle of the separation claw. Remove the cover from the sensor.
3. Disconnect the connector from the sensor.
4. Pry the four sensor latches from the cover and remove the sensor.

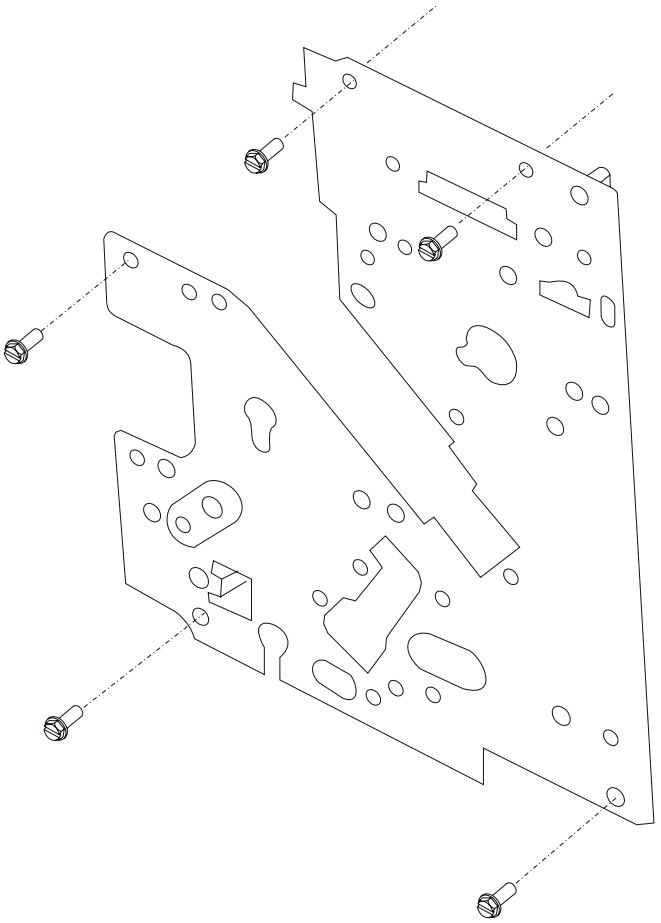
Transfer Drum Assembly

See Assembly 29-1.

1. Open the front cover.
2. Remove the paper cassette.
3. Remove the waste toner bottle.
4. Remove the photoconductor unit.

Note: Use the cover saved during installation to protect the photoconductor from light.

5. Remove the upper front trim panel screw and remove the panel (you may have to raise the top cover slightly).
6. Disconnect the transfer drum connector under the bar code label.
7. Remove the 5 silver phillips head screws from the drum assembly. The gold screws are used to retain the plastic trim panel.
8. Open the multipurpose paper pickup door.
9. Release the two green cassette latches and slide the tray out as far as possible.
10. Push the drum release lever down.
11. Slide the drum out the front of the machine.



Transfer Drum Cleaning Drive Assembly

See Assembly 17-1.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover.
2. Remove the left side cover and the rear cover.
3. Remove the EMC shield from the rear of the machine.
4. Open the multipurpose paper pickup door.
5. Release the two green cassette latches and slide the tray out as far as possible.
6. Remove the connector cover (Asm 8-24) and disconnect the connector.
7. Remove the LVPS.
8. Disconnect connector (J2014) from the mechanical controller PCB.
9. Remove the four mounting screws from the drive gear solenoid assembly and remove the assembly. Disconnect the remaining 2-pin connector from the frame.
10. Remove the four screws from the main drive motor and board assembly and remove the assembly.
11. Remove the three screws from the transfer drum drive assembly and remove the assembly.

Note: One of the screws is accessed through a hole in the printer drive assembly.

Toner Cartridge Ejector

See Assembly 12-1.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the two screws from the operator panel and remove the operator panel.
2. Remove the front door.
3. Remove the top cover.
4. Remove the left cover.
5. Remove one of the toner cartridges.
6. Remove the screw and the upper right hand front panel.
7. Remove the four screws and the left front panel.
8. At the left, rear of the ejector assembly there is a latch which goes into the bottom frame. Push this latch toward the center of the machine to release it.
9. Push the ejector to the rear and lift up.
10. Disconnect the connector (either at the ejector board or on the rear frame of the machine).
11. Slide the ejector out of the front of the machine. Do not damage the switch on the ejection sensing PCB located directly below the front of the ejector.

Note: When reinstalling, line the handle up with the handle guide before pressing the latches in place.

Upper Cooling Fan

See Assembly 7-7.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover.
2. Remove the screw that retains the fan grill operator panel bezel and remove the bezel.
3. Pry away the ESD shield from the fan housing. It is snapped on in 3 places.
4. Disconnect the fan connector from the engine board.
5. Unsnap the fan from its duct.

Upper Output Drive Assembly

See Assembly 21-1.

For cover removals, see “Cover Removals” on page 4-8.

1. Remove the top cover.
2. Remove the screw that mounts the delivery drive assembly and remove the assembly.

Video Controller Board

Note: Observe ESD precautions.

See Assembly 7-32.

1. Turn the printer off.
2. Loosen the 2 board retaining thumbscrews.
3. Slide the board out.

Optional Paper Feeder Removals

The Optional Paper Feeder unit must be removed in order to perform the following removals.

1. Disconnect the power cord.
2. Remove the two lock pins.

Note: Two persons should be used to lift the printer from the sheet feeder.

Cassette Feed Solenoid

See Assembly 35-20.

1. Remove the front pickup unit.
2. Remove the screw and the solenoid.

Cassette Size Sensing Board

See Assembly 36-2.

1. Remove the cassette.
2. Open the Open/Close Door.
3. Remove the left cover.
4. Disengage the claw securing the left rail and remove the rail.
5. Remove the screw and the holder cover.
6. Disconnect the connector and remove the leaf spring to remove the assembly.
7. Disengage the claw securing the board to the assembly.

External Covers

See Assembly 34.

1. Remove the cassette tray.
2. Open the Open/Close cover.
3. Remove the three screws and the front cover.
4. Remove the two screws and the rear cover.
5. Remove the two screws and the left cover.
6. Remove the one screw and the right cover.
7. Remove the two E-clips and the two screws and right Open/Close cover hinge, the connecting plate and remove the Open/Close door.

Feed Roller (Unit 1)

See Assembly 35-16.

1. Remove the cassette.
2. Open the Open/Close Door.
3. Remove the screw and the Feed Roller Unit 1.
4. Disengage the claw securing the gear, then remove the gear, shaft, and roller.

Front Pickup Unit

See Assembly 35-4.

1. Remove the cassette.
2. Remove the front cover.
3. Remove the Open/Close cover.
4. Remove the six screws and gear cover.
5. Remove the seven screws, the E-clip and disconnect the three connectors.
6. Remove the pickup unit.

Paper Feeder Circuit Board

See Assembly 36-6.

1. Remove the rear cover.
2. Remove the six screws and the gear cover.
3. Disconnect the three connectors under the gear cover.
4. Remove the three mounting screws and carefully slide the board and its mount out enough to disconnect the three connectors on the board.
5. Remove the four mounting screws to remove the board from its mount.

Note: The Open/Close Door must be open when reinstalling the board and the mount, to prevent interference with the switch rod and switch. Check the side registration and switch setting on the new board with the old board.

Paper Feed Roller (Unit 2)

See Assembly 35-7.

1. Remove the front pickup unit.
2. Remove the two E-clips, the two bearings and the gear.
3. Remove the feed roller.

Paper Pickup Motor

See Assembly 35-19.

1. Remove the front pickup unit.
2. Remove the two screws and the motor.

Paper Sensor Board

See Assembly 35-17.

1. Remove the front pickup unit.
2. Disconnect the connector and disengage the claw holding the board.

Pickup Roller(s)

See Assembly 35-3.

1. Remove the front pickup unit.
2. Disengage the claw securing the pickup roller to the shaft and remove the roller.

Note: Always replace the rollers as a set.

Pickup Sensor

See Assembly 35-5.

1. Remove the front pickup unit.
2. Remove the screw securing the guide.
3. Disengage the claw securing the sensor.
4. Disconnect the connector and remove the sensor.

Power Supply

See Assembly 36-5.

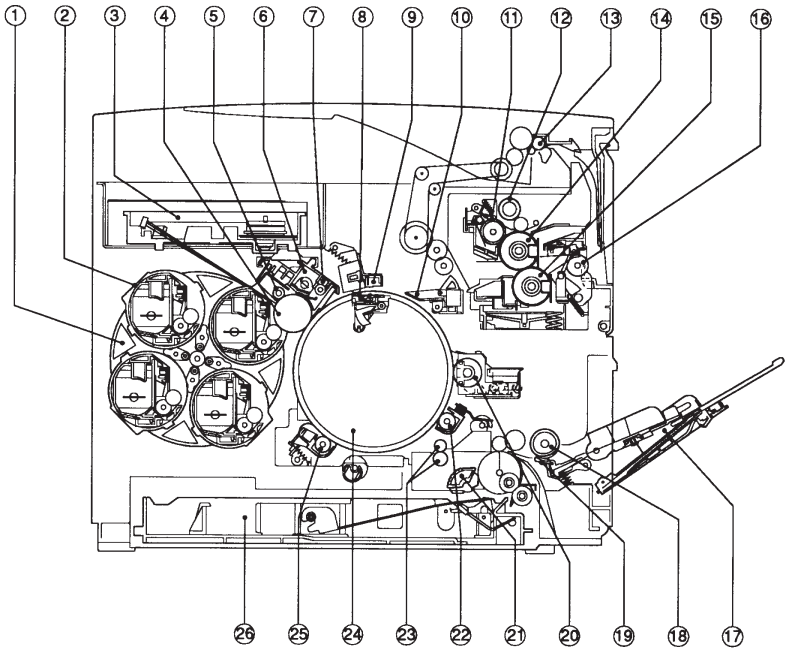
1. Remove the rear cover.
2. Open the Open/Close door.
3. Remove the four screws and carefully pull the power supply out enough to disconnect the connector.
4. Remove the power supply.

Separation Roller Unit

See Assembly 37-4.

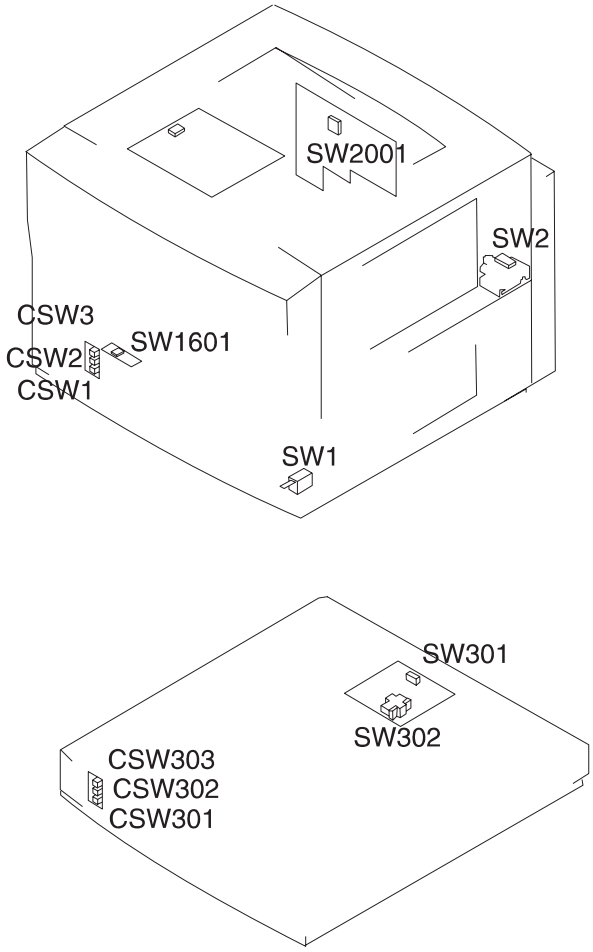
1. Remove the cassette.
2. Open the Open/Close Door.
3. Remove the screw securing the separation roller unit and remove the separation unit.
4. Remove the E-clip and the bushing to remove the separation roller.

5. Locations



1 Developing rotary unit
2 Toner cartridge
3 Laser / scanner unit
4 Photosensitive drum
5 Primary charging roller
6 Drum cartridge
7 Cleaning unit
8 Gripper
9 Separation charging unit
10 Separation claw
11 Oil applying roller
12 Cleaning belt
13 Top exit delivery roller
14 Fuser upper roller
15 Fuser lower roller
16 Fuser delivery roller
17 Manual feed tray
18 Manual feed pickup roller
19 Separation pad
20 Cleaning brush
21 Cassette pickup D-rollers
22 Discharge roller
23 Registration rollers
24 Transfer drum
25 Attraction roller
26 Cassette

Switches

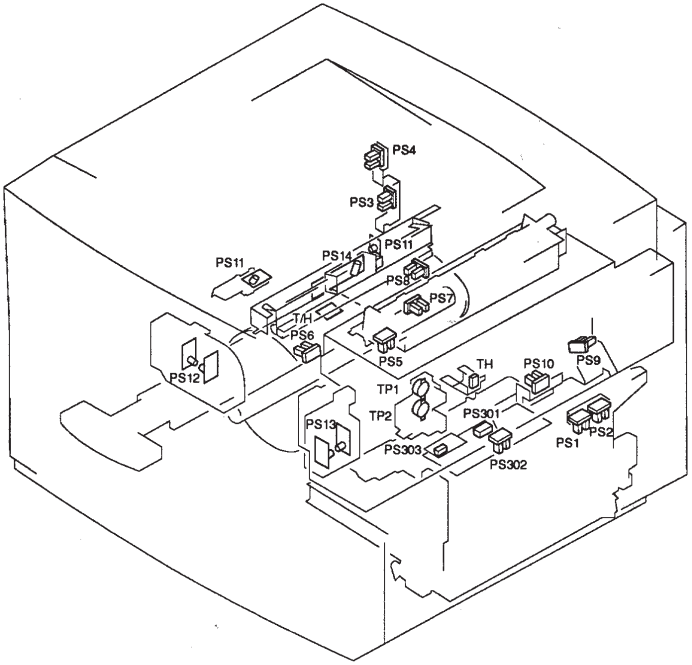

SW2001
SW2
CSW3
SW1601
CSW2
CSW1
SW1
SW301
SW302
CSW303
CSW302
CSW301

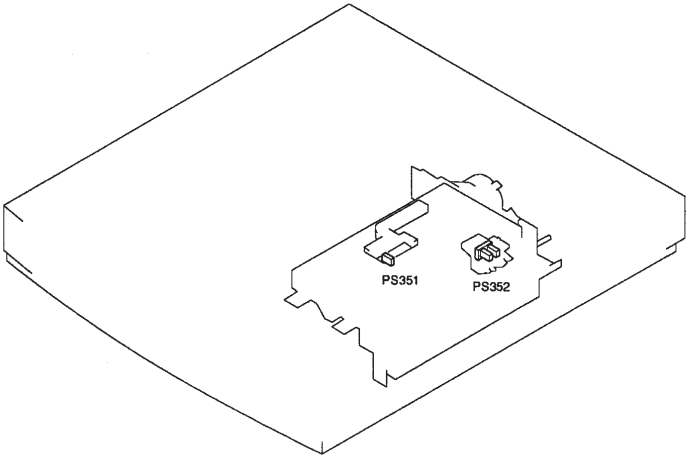
Switches

Name	ASM - Index	Function
SW1	3 - 9	Power switch
SW2	11 - 6	Door switch
SW1601	3 - 8 *	Ejection sensing switch
SW2001	7 - 32 *	Reset switch for mechanical controller PCB
CSW1	3 - 8 *	Cassette-size sensing switch 1
CSW2	3 - 8 *	Cassette-size sensing switch 2
CSW3	3 - 8 *	Cassette-size sensing switch 3
SW301	36 - 6 *	Side registration adjustment switch (paper feeder)
SW302	36 - 6 *	Right door switch (paper feeder)
CSW301	36 - 2 *	Cassette-size sensing switch l (paper feeder)
CSW302	36 - 2 *	Cassette-size sensing switch 2 (paper feeder)
CSW303	36 - 2 *	Cassette-size sensing switch 3 (paper feeder)

* Part of a larger FRU, not serviced individually

Sensors


PS4
PS3
PS11
PS14
PS11
PS8
PS7
T/H
PS6
PS5
TH
PS10
PS9
PS12
TP1
TP2
PS301
PS13
PS303
PS302
PS1
PS2


PS351
PS352

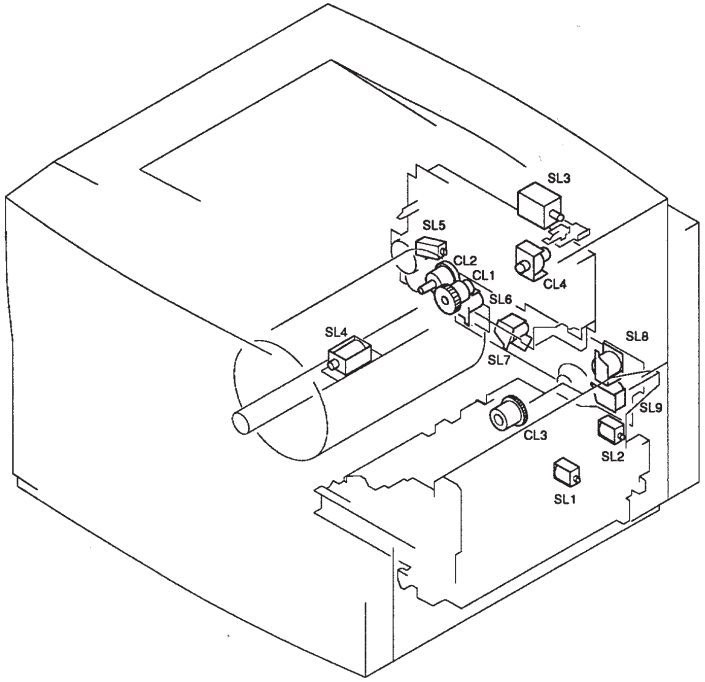
Sensors

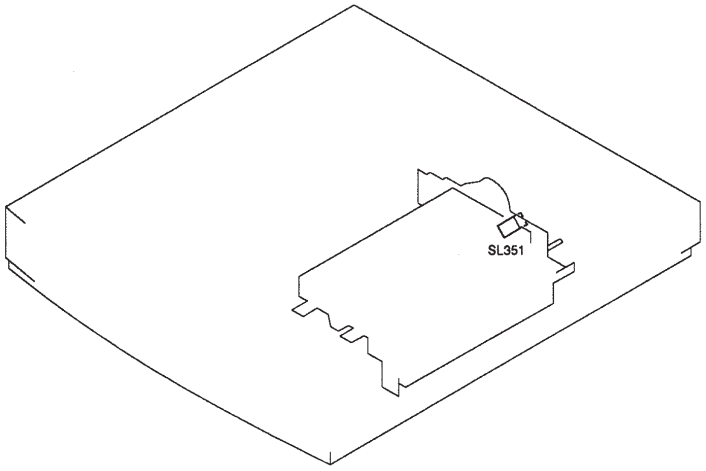
Name	ASM - Index	Function
PS1	25 - 9	Manual feeding paper sensor
PS2	25 - 9	Manual feeding paper size sensor
PS3	8 - 8	Toner cartridge position sensor
PS4	8 - 7	Developing rotary position sensor
PS5	26 - 3	Cleaning belt sensor
PS6	29 - 3	Attraction sensor, see “Transfer Drum (Cont.)” on page 7-62
PS7	29 - 3	Separation sensor, see “Transfer Drum” on page 7-60
PS8	29 - 11	Transfer drum top sensor
PS9	32 - 17	Delivery paper sensor
PS10	32 - 18	0il overflow sensor
PS302	24 - 13 *	Registration paper sensor
PS352	35 - 35	Pickup sensor (Paper feeder)
PS301	24 - 13 *	Cassette paper sensor
PS351	35 - 17	Cassette paper sensor (Paper feeder}
PS303	24 - 13 *	Paper top sensor
PS11	6 - 23 RCV 16 - 2 BEAM	Toner sensor
PS12	3 - 10	Waste toner sensor
PS13	5 - 14	Oil sensor
PS14	30 - 6	Density sensor
TH	32 - 15	Detects the fuser lower roller surface temperature
Table continued on next page.		

Name	ASM - Index	Function
TP1	32 - 14	Detects the fuser upper roller abnormal temperature
TP2	32 - 14	Detects the fuser lower roller abnormal temperature
T/H	2 - 22	Temperature / humidity sensor

* Part of PCB

Clutches and Solenoids

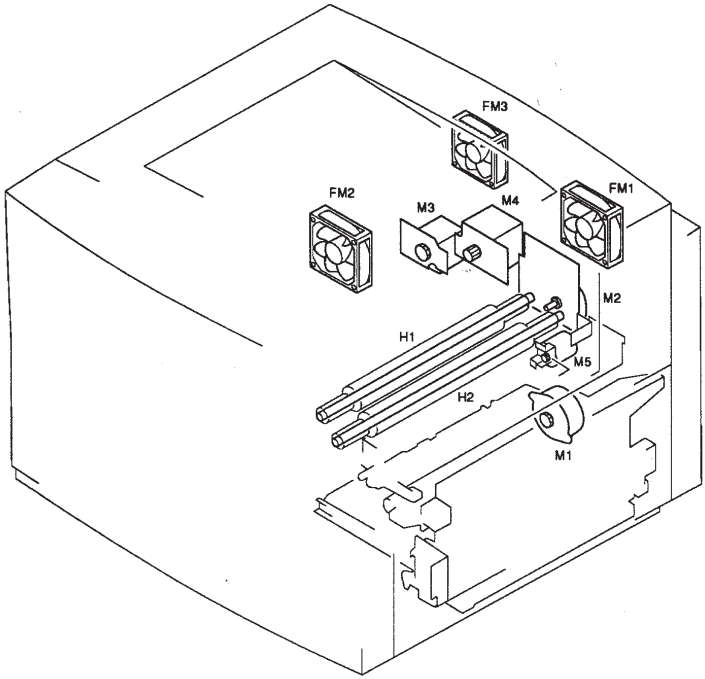


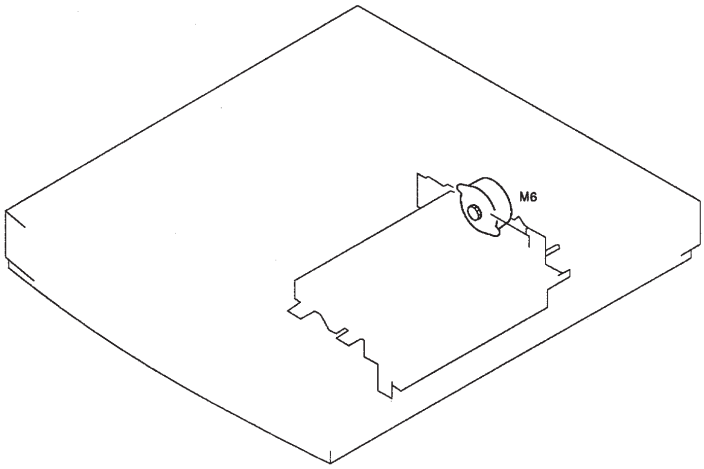


Clutches and Solenoids

Name	ASM - Index	Function
CL1	16 - 9	Developing rotary brake clutch
CL2	16 - 8	Developing unit drive clutch
CL3	24 - 11	Registration roller clutch
CL4	16 - 5	Fuser unit drive clutch
SL1	24 - 10	Cassette feed solenoid
SL2	24 - 8	Manual feed solenoid
SL3	4 - 16	Cleaning belt drive solenoid
SL4	29 - 5	Gripper drive solenoid
SL5	29 - 4	Separation claw solenoid
SL6	13 - 3	Attraction roller press solenoid
SL7	13 - 3	Drum press solenoid
SL8	13 - 3	Transfer drum cleaner press solenoid
SL9	13 - 4	Discharge roller press solenoid
SL351	35 - 20	Cassette feed solenoid (paper feeder)

Motors and Fuser Heaters

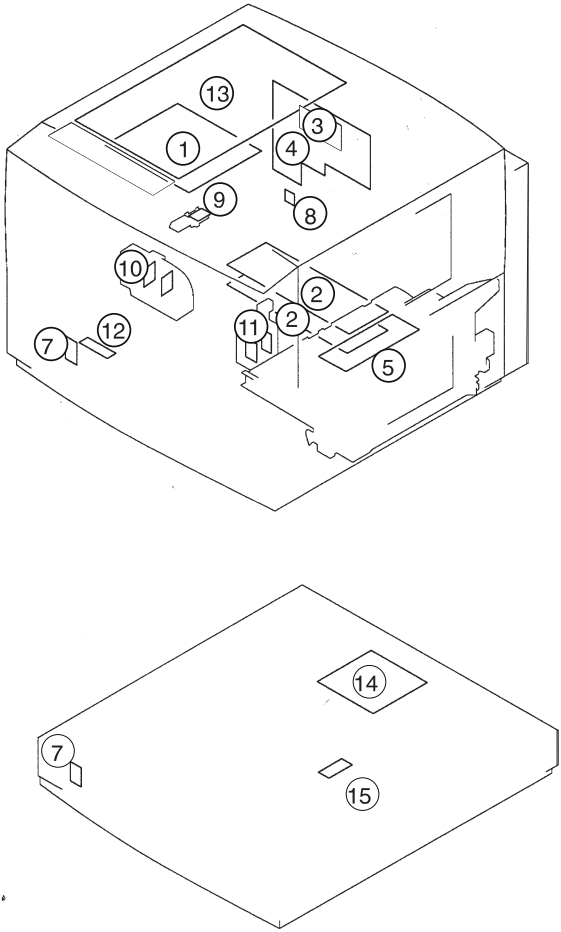




Motors and Fuser Heaters

Name	ASM - Index	Function
M1	24 - 9	Pickup motor
M2	7 - 6	Main motor
M3	16 - 7	Developing unit motor
M4	16 - 6	Drum motor
M5	31 - 2	Cleaning brush motor
M6	35 - 19	Paper feeder motor
FM1	7 - 7	Fuser unit fan
FM2	7 - 8	Electrical unit fan
FM3	5 - 24	Controller fan
H1	32 - 2/11	Fuser upper roller heater (110 V or 220 V)
H2	32 - 2/11	Fuser lower roller heater (110 V or 220 V)

PCBs

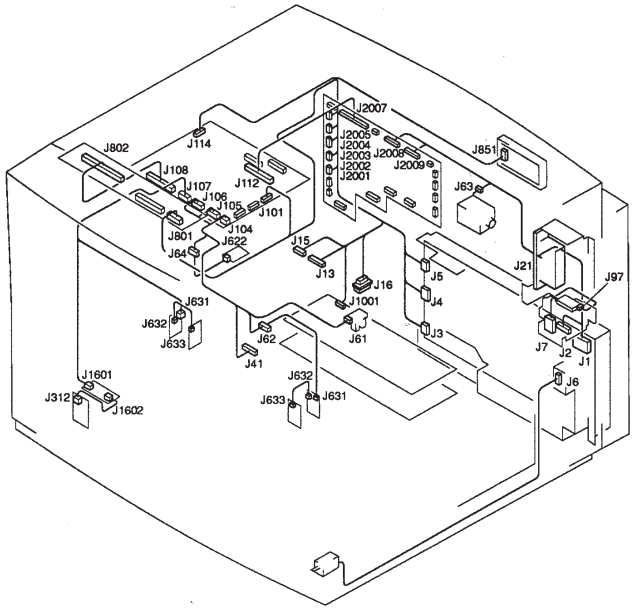


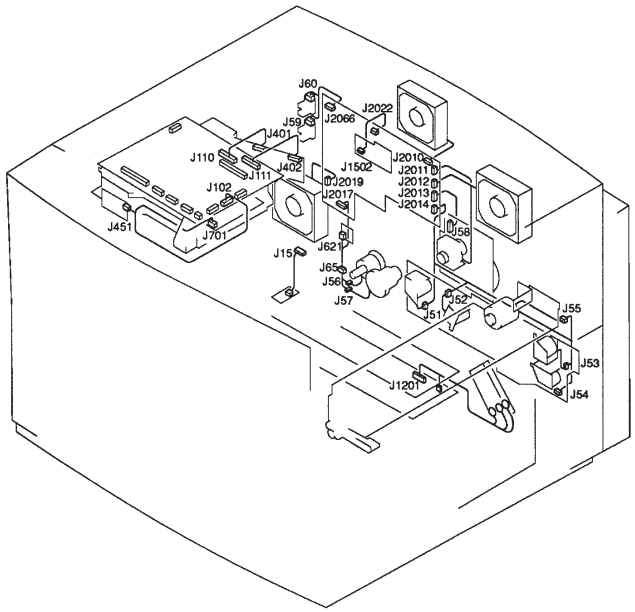
PCBs

Name	ASM - Index	Function
1 DC Controller PCB	5 - 29	Controls printer functions (Laser/scanner control, Image stabilization control, fuser unit temperature control, video interface control, other various detection functions).
2 High-voltage power supply PCB	2 - 26	Applies voltage in sequential correspondence with primary charging, developing, transfer, discharging, attraction, and separation.
3 Separation HVT PCB	3 - 15	Supplies separation output to the fuser unit and the separation charging unit / corona.
4 Mechanical controller PCB	7 - 32	Controls the various loads and various detection functions (motors. developing unit, fuser unit, transfer drum peripherals, pick-up/high voltage/paper feeder, etc.).
5 Pick-up PCB	24 - 13	Controls the pick-up system loads.
6 Terminal PCB	5 - 23	Relays signals between the DC controller and the video controller.
7 Cassette size-sensing PCB	3 - 8	Detects the cassette size.
8 Toner-low detect beam PCB	16 - 2	Detects the toner amount (Emitting unit).
9 Toner-low detect receive PCB	6 - 23	Detects the toner amount (Receiving unit).
10 Waste-toner sensing PCB	3 - 10	Detects the waste toner bottle is full.
11 Oil-sensing PCB	5 - 14	Detects the oil amount.

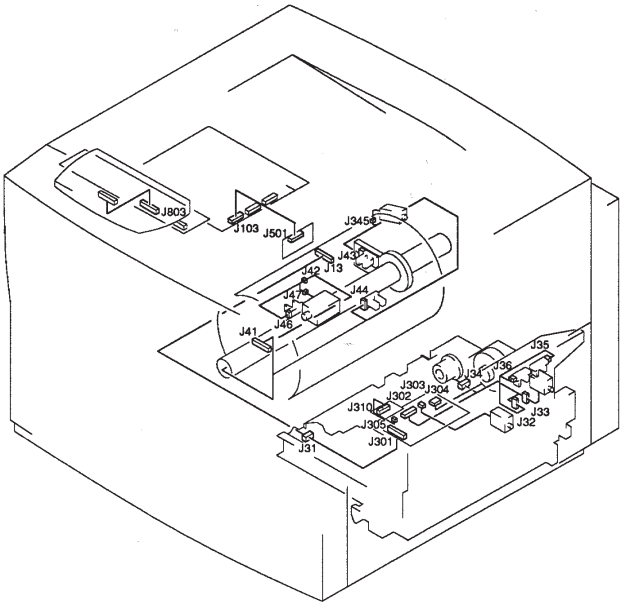
Name	ASM - Index	Function
12 Ejection-sensing PCB	3 - 8	Detects pulling of the ejection lever.
13 Video controller PCB	33 - 1	Processes input/output data between the printer and the external device.
14 Paper feeder driver PCB	36 - 6	Drives the solenoids and the motors in the optional paper feed.
15 Cassette paper sensor PCB	35 - 17	Detects the optional cassette Is out of paper.

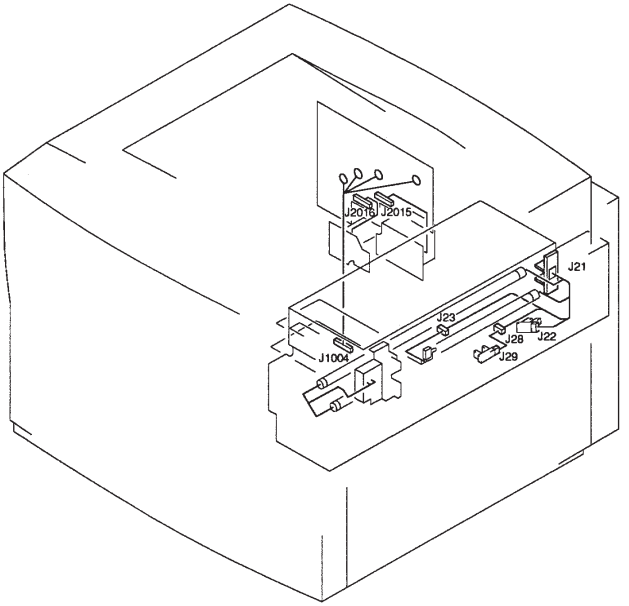
Connector Locations



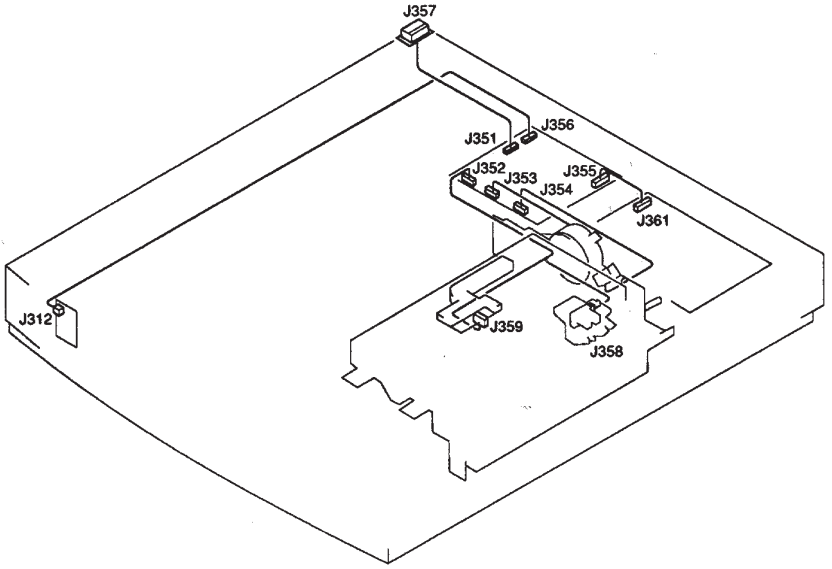


Connector Locations





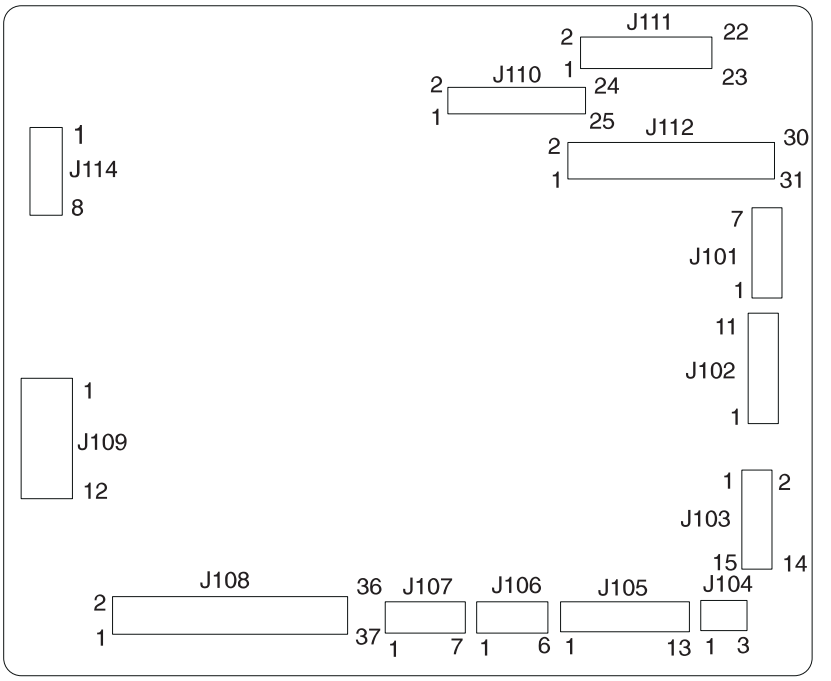
Connector Locations



DC Controller Board Connector Locations

Name	Function
J 101	LVPS
J 102	Laser Beam Detect / Motor
J 103	Density Sensor
J 104	Toner Low Detect (receive)
J 105	Transfer Drum
J 106	Cleaning Belt Sensor / Oil Sensor
J 107	Waste Toner Sensing/ Cassette Size Sensing / Ejection Sensing
J 108	Terminal Board and Display
J 109	Not Used
J 110	Laser Driver Board
J 111	Laser Driver Board
J 112	Mechanical Controller
J 113	Not Used
J 114	Density Adjustment Panel

DC Controller Board Connector Locations (Graphic)



DC Controller Board Connectors (J101, J102, J103)

J 101	J 102	J 103
LVPS	**Laser Beam Detect**	**Density Sensor**
1 GND	1 BDCHK	1 +5 V
2 +5 V	2 GND	2 DSNS
3 GND	3 /BD	3 /DENSEL
4 +24 VB	4 +5 V	4 GND
5 PCONT	**Laser Beam Motor**	5 /D0
6 POFF	5 GND	6 /D1
7 DOPN	6 SCNCLK	7 /D2
	7 GND	8 /D3
	8 /SCNON	9 /D4
	9 /SCNRDY	10 /D5
	10 +24 VB	11 /D6
	11 +24 VB	12 /D7
		13 /DENB
		14 +24 V
		15 Not Used

Note: A “/” before a signal name indicates “Active Low” or “Ground Shot Operated”.

DC Controller Board Connectors (J104, J105, J106)

J 104	J 105	J 106
Toner Low Detect	**Transfer Drum**	**Cleaning Belt Sensor**
(receive)	**Top Sensor**	1 LEDDRV
1 TNSNS	13 +5 V	2 GND
2 GND	12 GND	3 WEBSNS
3 RET (+5 V)	11 /TOPREG	**Oil Sensor**
	Separation Claw	4 LEDDRV
	Drive Solenoid	5 GND
	10 +24 VA	6 OILSNS
	9 /SPSLON	
	Separation Senor	
	8 SEPSNS	
	7 GND	
	6 LEDON	
	Gripper Drive Sole-noid	
	5 +24 VA	
	4 /GRIPON	
	Attraction Sensor	
	3 ATTSNS	
	2 GND	
	1 LEDON	

DC Connector Board Connectors (J107, J108, J109)

J 107	J 108	J 109
Waste Tower Sensing	**Terminal Board**	**Not Used**
1 LEDON	**Video Interface**	
2 GND	1 through 37	
3 HTSNS		
Cassette Size Sensing / Ejection Sensing		
4 GND		
5 /C SIZE 1		
6 /C SIZE 2		
7 /C SIZE 3		

DC Controller Board Connectors (J110, J111, J112)

J 110	J 111	J 112
Laser Drive Board	**Laser Drive Board**	**Mechanical Controller Board**
1 + 12 V	1 M6	1 Not Used
2 + 12 V	2 GND	2 GND
3 + 12 V	3 M5	3 GND
4 GND	4 M4	4 +24 V
5 PDIN	5 M3	5 Not Used
6 GND	6 M2	6 +5 V
7 LLCNT	7 M1	7 HUMSNS
8 GND	8 GND	8 GND
9 DV1 (GND)	9 SCK1	9 TMPSNS
10 GND	10 GND	10 GND
11 DV2	11 M9(GND)	11 GND
12 GND	12 GND	12 /SCK
13 DV3	13 M8	13 /RX
14 GND	14 GND	14 /TX
15 DV4	15 M7	15 /SRST
16 GND	16 GND	16 SEPON
17 DV5	17 NHD	17 GRIPON
18 GND	18 GND	18 SEPSNS
19 DV6	19 +5 V	19 /TOPREG
20 GND	20 +5 V	20 ATTSNS
21 DV7	21 +5 V	21 TNSNS
22 GND	22 /LSON	22 /FXSNS
23 DV8	23 /VDOE	23 GND
24 GND		24 THI
25 DV9		25 GND
		26 /FXUON
		27 /FXLON
		28 /FXENB
		29 /FXROF
		30 SFSNS
		31 FXSTS

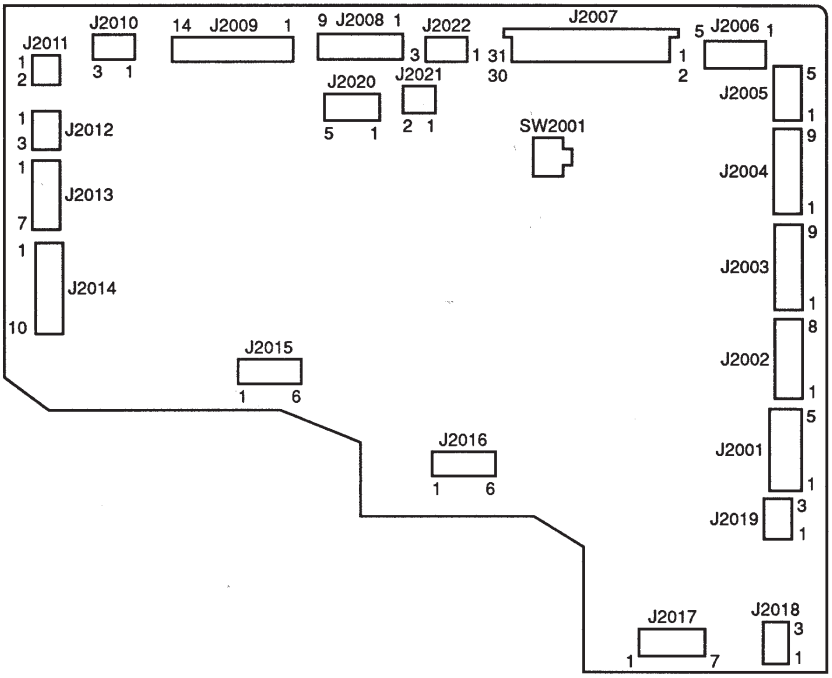
DC Controller Board Connectors (J113, J114)

J 113	J 114
Not Used	**Density Adjustment Panel**
	1 /TST2
	2 /LCK
	3 /DSCK
	4 /SDO
	5 /SDI
	6 GND
	7 +5 V
	8 /DSPEN

Mechanical Controller Board Connector Locations

Name	Function
J2001	LVPS
J2002	Paper Pickup Board
J2003	Optional Sheet Feed
J2004	HVPS
J2005	Temperature / Humidity Sensor
J2006	Rotary Position / Cartridge Position Sensor
J2007	DC Controller Board
J2008	LVPS
J2009	Cleaning Belt Drive Solenoid and Fuser
J2010	Controller Fan
J2011	Fuser Drive Clutch
J2012	Fuser Fan
J2013	Main Drive Motor
J2014	Solenoid Plate / Cleaning Brush Motor
J2015	Drum Motor
J2016	Developer Motor
J2017	Toner Low Detect (beam) / Developer Unit Drive Clutch / Developer Unit Brake
J2018	Not Used
J2019	Electrical Unit Fan
J2020	Not Used
J2021	Not Used
J2022	Separation High Voltage Unit

Mechanical Controller Board Connectors (Graphic)



Mechanical Controller Board (J2001, J2002, J2003)

J2001	J2002	J2003
Low Voltage Power Supply	**Paper Pickup Board**	**Optional Sheet Feed**
1 +24 VB	1 TXD	1 RES
2 GND	2 RXD	2 SEL
3 +5 V	3 CLK	3 Not Used
4 GND	4 GND	4 +5 V
5 +24 VA	5 +5 V	5 GND
	6 PGND	6 CLK
	7 +24 VC	7 RXD
	8 RES	8 TXD

Mechanical Controller Bd (J2004, J2005, J2006)

J2004	J2005	J2006
High Voltage Power Supply	**Temperature / Humidity Sensor**	**Toner Cartridge Position Sensor**
1 TXD	1 GND	1 +5 VSAVE
2 RXD	2 TMPSNS	2 GND
3 CLK	3 GND	3 DEVCAM
4 SEL	4 HUMSNS	**Rotary Position Sensor**
5 RES	5 +5 VU	4 +5 VSAVE
6 +5 V		5 GND
7 GND		6 DEVHP
8 +24 V		
9 PGND		

Mechanical Controller Bd (J2007, J2008, J2009)

J2007	J2008	J2009
DC Controller Board	**Low Voltage Power Supply**	**Cleaning Belt Drive Solenoid / Fuser**
1 Not Used	1 FXSTS	**Fuser**
2 PGND	2 SFSNS	1 THI
3 PGND	3 FXTYP	2 (THIRET) GND
4 +24 VA	4 THI	3 /FXSNS
5 Not Used	5 /FXROF	4 GND
6 +5 V	6 /FXENB	5 FXTYP
7 HUMSEN	7 /FXLON	6 +5 V
8 GND	8 /FXUON	**Drive Solenoid**
9 TMPSNS	9 GND	7 /WEBSL
10 GND		8 +24 VA
11 SGND		**Fuser**
12 SCK		9 +5 VSAVE
13 TXD		10 GND
14 RXD		11 POUT
15 /DRESIN		12 +5 VSAVE
16 SEPON		13 GND
17 GRIPON		14 OILFUL
18 SEPSNS		
19 TOPREG		
20 ATTSNS		
21 TNSNS		
22 /FXSNS		
23 THIRET (GND)		
24 THI		
25 GND		
26 /FXUON		
27 /FXLON		
28 /FXENB		
29 /FXROF		
30 SFSNS		
31 FXSTS		

Mechanical Controller Bd (J2010, J2011, J2012)

J2010	J2011	J2012
Controller Fan	**Fuser Drive Clutch**	**Fuser Fan**
1 GND	1 /FXON	1 GND
2 /FANLK3	2 +24 VA	2 FANLK1
3 FAND3		3 FAND1

Mechanical Controller Bd (J2013, J2014, J2015)

J2013	J2014	J2015
Main Drive Motor	**Solenoid Plate / Cleaning Brush Motor**	**Drum Motor**
1 MLOW	**Attraction Roller Solenoid**	1 CA
2 /MRDY	1 /ATTSLON	2 CB
3 /MON	2 +24 VA	3 AO
4 GND	**Drum Press Solenoid**	4 /AO
5 GND	3 /DDSLON	5 BO
6 +24 VA	4 +24 VA	6 /BO
7 +24 VA	**Transfer Drum Clean Press Solenoid**	
	5 /TDCSLON	
	6 +24 VA	
	Cleaning Brush Motor	
	7 /TDCON	
	8 +24 VA	
	Discharge Roller Press Solenoid	
	9 /SCSLON	
	10 +24 VA	

Mechanical Controller Bd (J2016, J2017, J2018)

J2016	J2017	J2018
Developer Motor	**Toner Low Detect (beam) / Developing Rotary Brake Clutch / Developing Unit Drive Clutch**	**Not Used**
1 CA	**Brake Clutch**	
2 CB	1 /DEVBRK	
3 AO	2 +24 VA	
4 /AO	3 /DEVON	
5 BO	4 +24 VA	
6 /BO	**Toner Beam**	
	5 TONLED	
	6 GND	
	7 NOT USED	

Mechanical Controller Bd (J2019, J2020, J2021)

J2019	J2020	J2021
Electrical Unit Fan	**Not Used**	**Not Used**
1 GND		
2 FANLK2		
3 FAND2		

Mechanical Controller Bd (J2022)

J2022
Separation High Voltage Unit
1 GND
2 ON/OFF
3 +24 VA

Paper Pickup Board

Name	Function
J301	Mechanical Controller Board
J302	Manual Feed Size Sensor / Manual Feed Paper Sensor / Manual Feed Solenoid / Registration Roller Clutch
J303	Cassette Feed Solenoid
J304	Pickup Motor
J305	Paper Top Sensor

Paper Pickup Board Connectors (J301, J302, J303)

J301	J302	J303
Mechanical Controller Board	**Manual Feed Size Sensor / Manual Feed Paper Sensor / Manual Feed Solenoid Sensor / Registration Roller Clutch**	**Cassette Feed Solenoid**
1 TXD	**Size Sensor**	1 CPFED
2 RXD	1 LEDDRV2	2 +24 VC
3 CLK	2 GND	
4 GND	3 MPSSNS	
5 +5 V	**Paper Sensor**	
6 PGND	4 LEDDRV2	
7 +24 VC	5 GND	
8 RES	6 MPPSNS	
	Manual Feed Solenoid	
	7 MPFED	
	8 +24 VC	
	Registration Roller Clutch	
	9 +24 VC	
	10 /REGFED	

Paper Pickup Board Connectors (J304, J305)

J304	J305
Pickup Motor	**Paper Top Sensor**
1 CB	1 LEDDRV1
2 CA	2 VREG
3 BO	3 TOPSNS
4 /BO	
5 AO	
6 /AO	

Terminal Board

Name	Function
J801	Video Controller Board
J802	DC Controller Board
J803	Display Panel
J804	Power Supply

Terminal Board Connectors (J801, J802, J803)

J801	J802	J803
Video Controller Board	**DC Controller**	**Panel Display**
1 through 96 Video Interface	1 through 37 Video Interface	A1 GRD
		A3 PCLK
		A5 FP1RQ
		B14 +5 V
		B9 PDATA

Terminal Board Connectors (J804)

J804
Power Supply
1 GND
2 GND
3 GND
4 +5 V
5 +5 V
6 +5 V

Optional Paper Feeder (Driver Board)

Name	Function
J351	Option Connector
J352	Paper Sensors
J353	Feed Motor
J354	Solenoid
J355	Power Supply
SW302	Right Door Switch
SW301	Side Registration Adjusting Switch

Optional Paper Feeder Driver Bd (J351, J352, J353)

J351	J352	J353
Option Connector	**Paper Sensors**	**Feed Motor**
1 TXD	1 +5 V	1 CA
2 RXD	2 GND	2 CB
3 CLK	3 OPREGSNS	3 AO
4 GND	4 +5 V	4 /AO
5 +5 V	5 GND	5 BO
6 REMOTE	6 OPSNS	6 /BO
7 SEL		
8 RES		

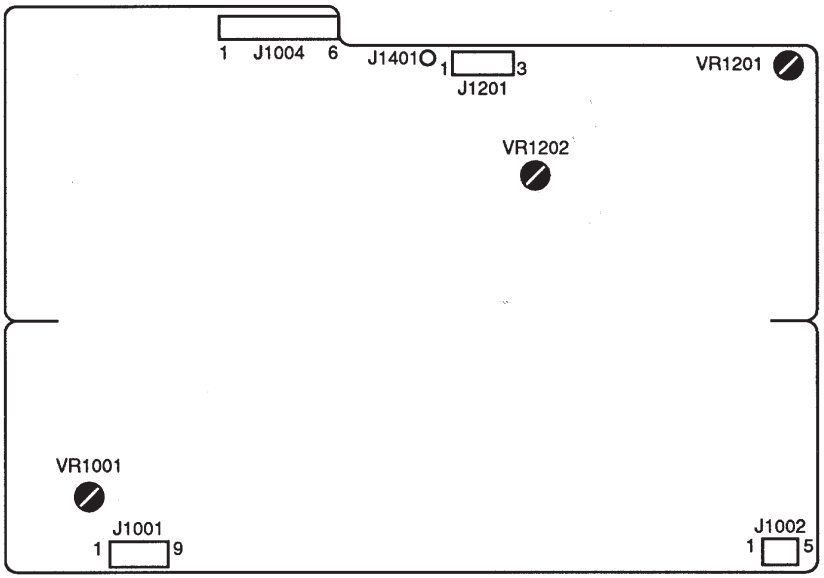
Optional Paper Feeder Driver Bd (J354, J355)

J354	J355
Solenoid	**Power Supply**
1 /OPFED	1 +24 V-BS
2 +24 V	2 +24 V-GND
	3 Remote-GND
	4 Remote

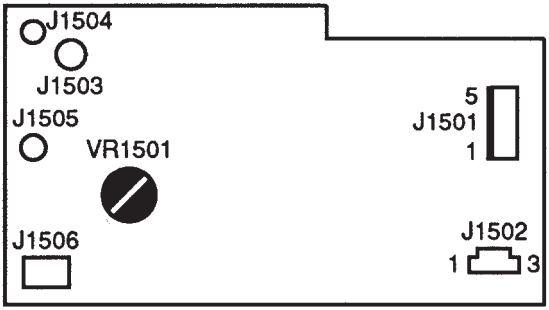
Optional Paper Feeder (Miscellaneous)

Name	Function
J312	Size Sensing PCB
PS351	Cassette Paper Sensor
J359	Paper Sensor Connector
SL351	Cassette Feed Solenoid
PS352	Pickup Sensor
J358	Pickup Sensor Connector

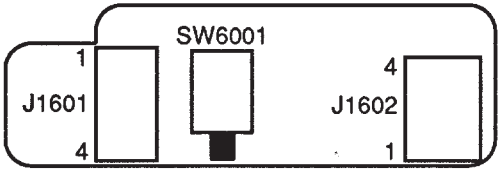
High Voltage Power Supply PCB



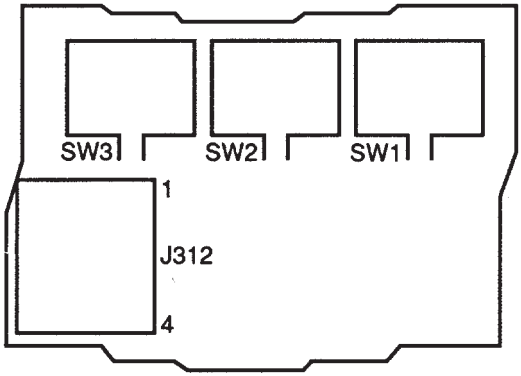
Separation HVT PCB



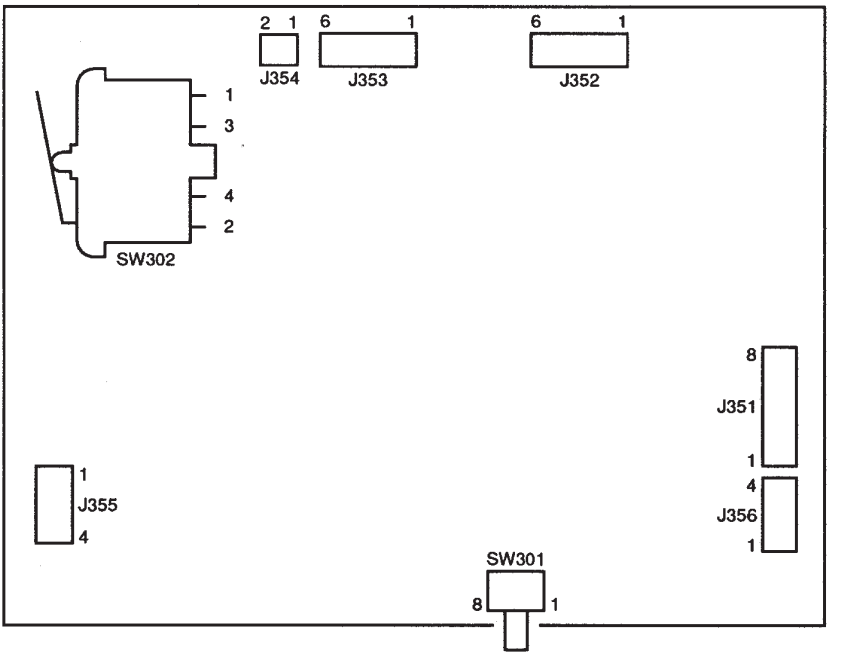
Ejection Sensing PCB



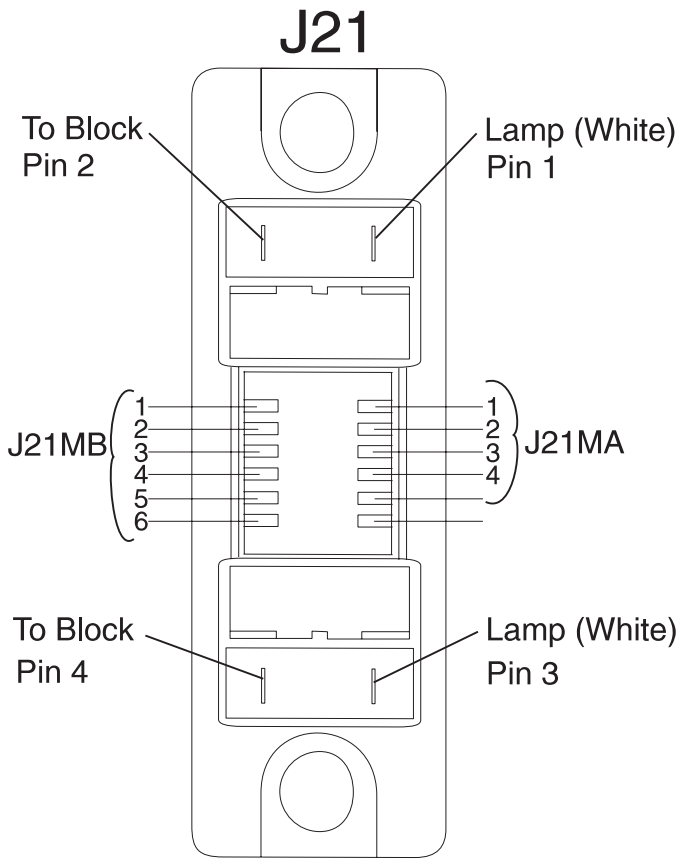
Cassette Size Sensing PCB



Paper Feed Driver PCB



Fuser Connector (J21)



6. Preventive Maintenance

This chapter describes procedures for printer preventive maintenance. Following these recommendations can help prevent problems and maintain optimum performance.

Safety Inspection Guide

The purpose of this inspection guide is to aid you in identifying unsafe conditions.

Use good judgment to identify possible safety conditions not covered by this inspection guide. Refer to the safety reminders for a general checklist.

If any unsafe conditions exist, find out how serious the hazard could be and if you can continue before you correct the hazard.

Check the following items:

- Damaged, missing, or altered parts, especially in the area of the On/Off switch and the power supply
- Damaged, missing, or altered covers, especially in the area of the top cover and the power supply cover
- Possible safety exposure from any non-Lexmark attachments

Lubrication Specifications

Use Grease (part 1321875) as needed.

Do not over grease the parts, but make sure new parts have adequate lubrication.

Use of a spray contact cleaner in most instances will allow normal functioning of the fuser sensors which have been contaminated with silicone oil. The only cleaner currently approved by Lexmark is CRC brand industrial contact cleaner # 03130. In addition to the cautions on the Material Safety Data Sheet (MSDS) label attached to the can, observe the following guidelines:

- When spraying either fuser sensor (PS9 or PS10), place a piece of absorbent material below the sensor to catch the excess spray.
- Use the supplied nozzle and direct the spray into the small apertures in the inside walls of the sensors.
- Spray quickly (approximately 1 second applications).

This spray leaves no residue, contains no CFCs and is plastic safe. Do Not use a substitute spray that has not been tested and is not plastic safe.

Lubricants and Cleaners

Alcohol or Isopropyl	Clean: Plastic, rubber and external parts.	Follow manufactures directions.
MEK	Clean: Oil and toner stains.	Follow manufacturer's directions.
Lubricating Oil	Apply between gear and shaft.	#10 oil
Lubricating Grease	Apply to gear.	#23 grease
Spray Cleaner	Clean fuser sensors	CRC # 31030

Maintenance, Customer Checks

Maintenance points that should be performed by the customer to maintain the printer at the optimum level are listed below. All other maintenance procedures are to be performed by a trained service technician.

Item	Action
Toner Cartridge	Shake or replace the cartridge.
Drum Cartridge	Replace
Waste Toner Bottle	Replace
Oil	Replace
Registration roller unit (cassette pickup unit)	Clean the paper dust between the metal registration roller and the sheet. Use a damp cloth and dry the unit.
Separation Charging Unit	Clean the corona wire with the brush included with the printer.
Density Sensor	Clean the lens with the brush included with the printer.

7. Parts Catalog

How To Use This Parts Catalog

- SIMILAR ASSEMBLIES: If two assemblies contain a majority of identical parts, they are broken down on the same list. Common parts are shown by one index number. Parts peculiar to one or the other of the assemblies are listed separately and identified by description.
- AR: (As Required) in the Units column indicates that the quantity is not the same for all machines.
- NP: (Non-Procurable) in the Units column indicates that the part is non-procurable and that the individual parts or the next higher assembly should be ordered.
- NR: (Not Recommended) in the Units column indicates that the part is procurable but not recommended for field replacement, and that the next higher assembly should be ordered.
- R: (Restricted) in the Units column indicates that the part has a restricted availability.
- NS: (Not Shown) in the Asm-Index column indicates that the part is procurable but is not pictured in the illustration.
- PP: (Parts Packet) in the Description column indicates that the part is contained in a parts packet.
- INDENTURE: The indenture is marked by a series of dots located before the parts description. The indenture indicates the relationship of a part to the next higher assembly. For example:

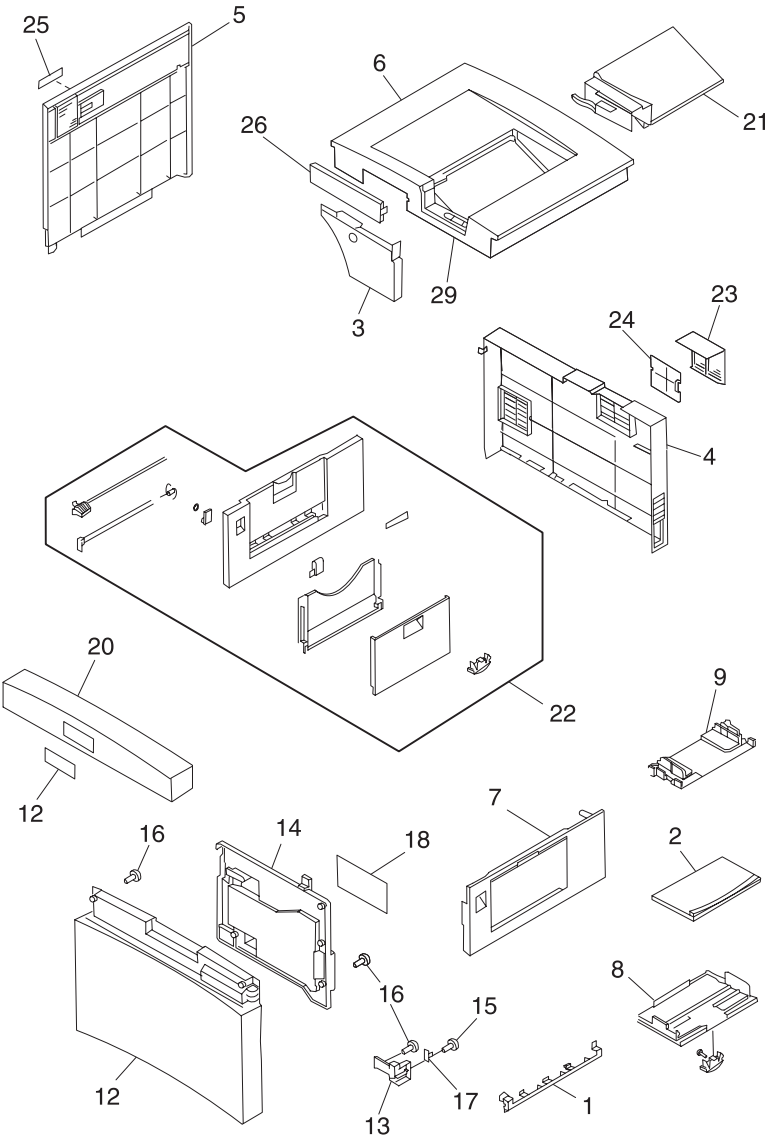
  INDENTURE RELATIONSHIP OF PARTS

  (No dot) MAIN ASSEMBLY

  (One dot) • Detail parts or subassembly of a main assembly

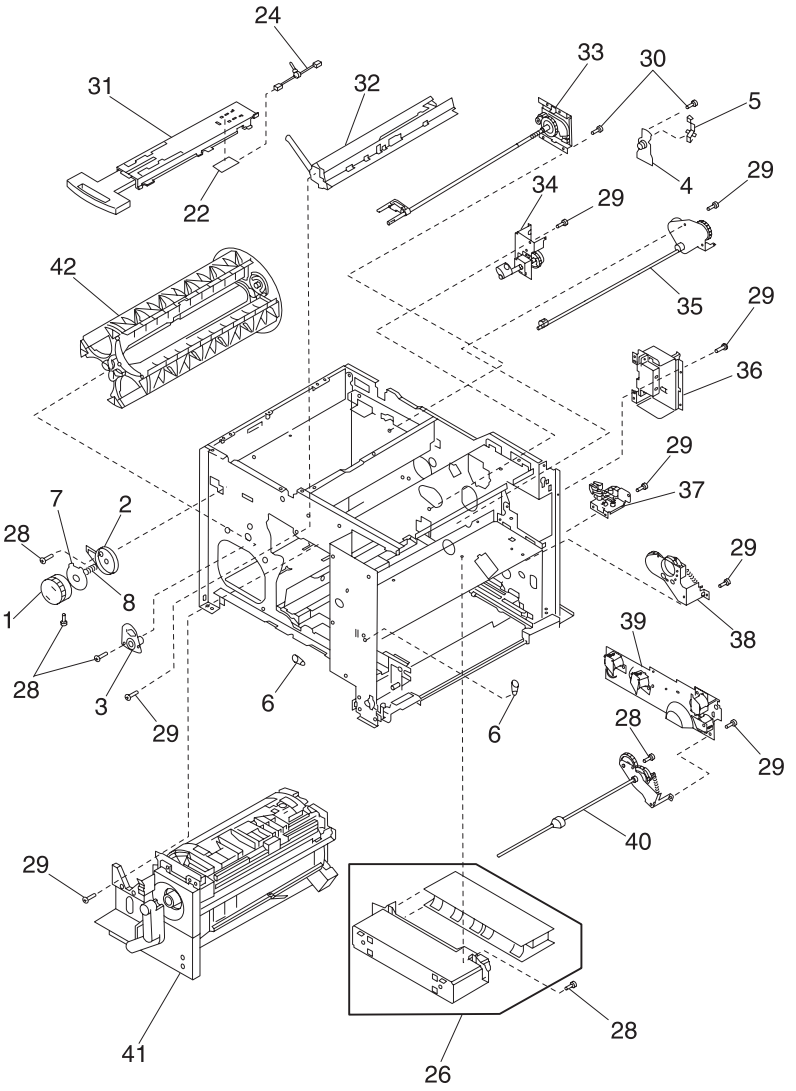
  (Two dot) • • Detail part or subassembly of a one-dot subassembly

Assembly 1: Covers



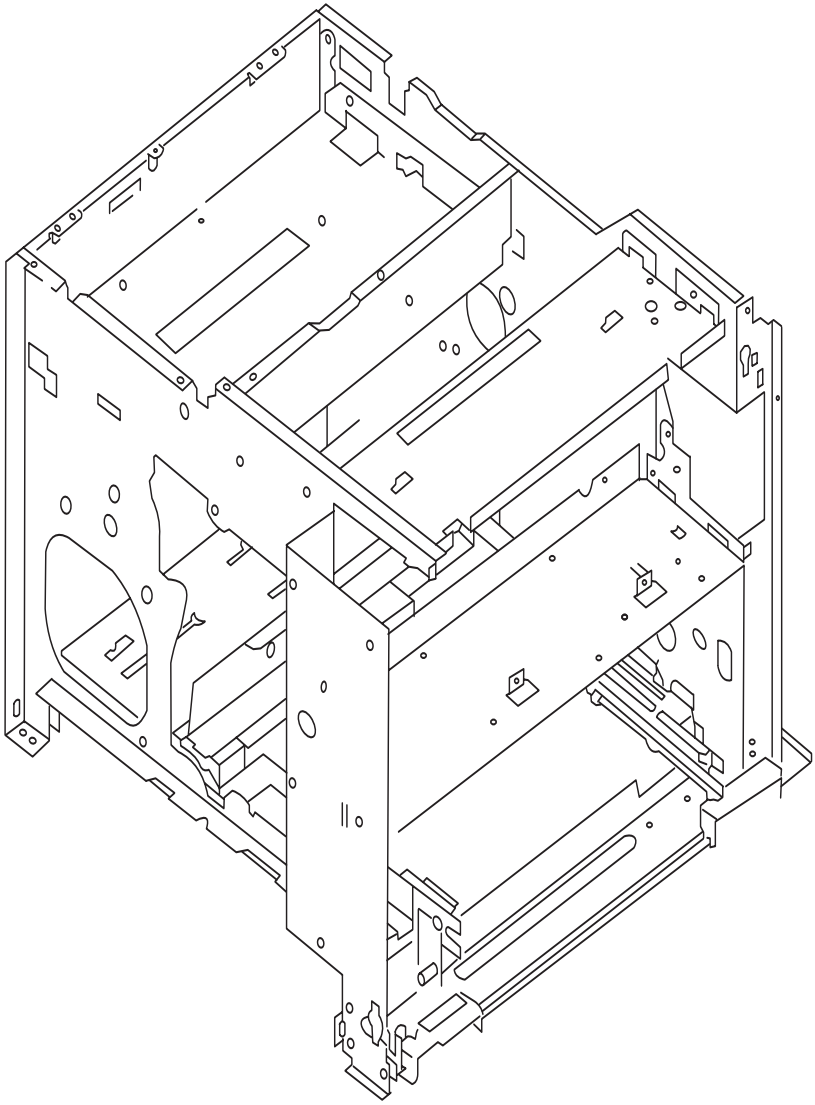
Asm-Index	Part Number	Units	Description
1-1	11A2747	1	Cover, Pick Up, Lower
-2	11A2140	1	Cover, Tray
-3	11A2319	1	Cover, Bezel
-4	11A2320	1	Cover, Rear
-5	11A2321	1	Cover, LH Side
-6	11A2322	1	Cover, Top
-7	11A2323	1	Cover, Multipurpose Door
-8	11A2324	1	Cover, Multipurpose Feeder Asm
-9	11A2325	1	Multipurpose Feeder Asm
-12	11A2327	1	Cover, Front
-13	11A2328	1	Latch Plate
-14	11A2329	1	Cover, Inner
-15			Screw, PP 11A2331
-16			Screw, PP 11A2340
-17	11A2330	1	Cover Latch
-18	11A2416	1	Cover Label
-20	11A2436	1	Front Bezel
-21	11A2417	1	Cover, Face Down Asm
-22	11A2418	1	Cover, Delivery Asm
-23	11A2419	1	Cover, Filter
-24	11A2421	1	Filter, Air
-25	11A2422	1	Cover, Board Connector
-26	11A2423	1	Cover, Trim For Top Cover
-28	11A2435	1	OP Panel Asm
-29	11A2739	1	Corona Cleaning Brush

Assembly 2: Major Components



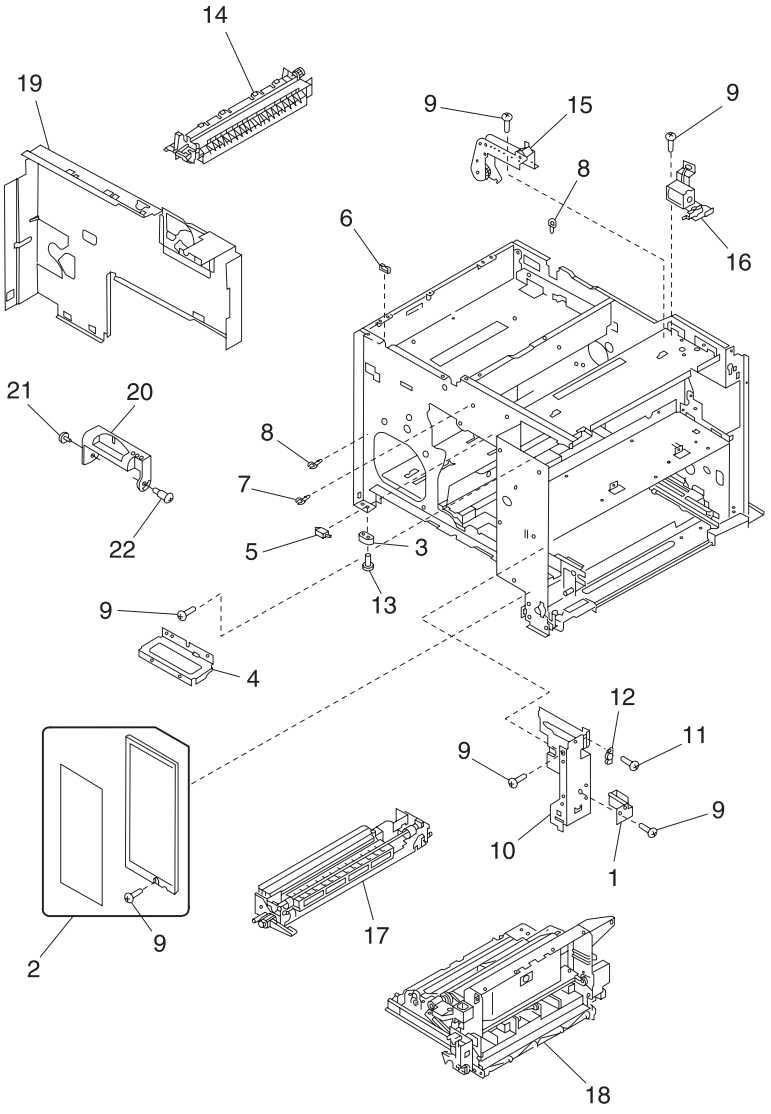
Asm-Index	Part Number	Units	Description
2-1	11A2424	1	Knob, Manual
-2		1	Bushing, PP 11A2379
-3		1	Bushing, Front, PP 11A2379
-4		1	Bushing, Rear, PP 11A2379
-5	11A2425	1	Lever, Release
-6		2	Bushing, PP 11A2379
-7	11A2717	1	Holder
-8		1	Spring, PP 11A2354
-NS	11A2741	1	Label, Caution, H.V.
-22	11A2426	1	Sensor Temperature & Humidity
-24	11A2427	1	Cable Temperature & Humidity
-26	11A2428	1	Power Supply, H.V.
-28			Screw, PP 11A2331
-29			Screw, PP 11A2331
-30			Screw, PP 11A2340
-31			See “Ejector Lever” on page 7-24
-32			See “Density Sensor Asm” on page 7-64
-33			See “Rotary Manual Feed” on page 7-30
-34			See “Attraction Roller Drive” on page 7-40
-35			See “Drum Lift” on page 7-38
-36			See “Door Switch, Upper” on page 7-20
-37			See “Door Switch, Lower” on page 7-22
-38			See “Transfer Drum Cleaning Drive” on page 7-34
-39			See “Solenoid Plate” on page 7-26
-40			See “Discharge Roller Drive” on page 7-36
-41			See “Transfer Drum Mounting Asm” on page 7-58
-42			See “Developing Rotary Asm” on page 7-56

Assembly 3: Toner (used) Reservoir/ HV



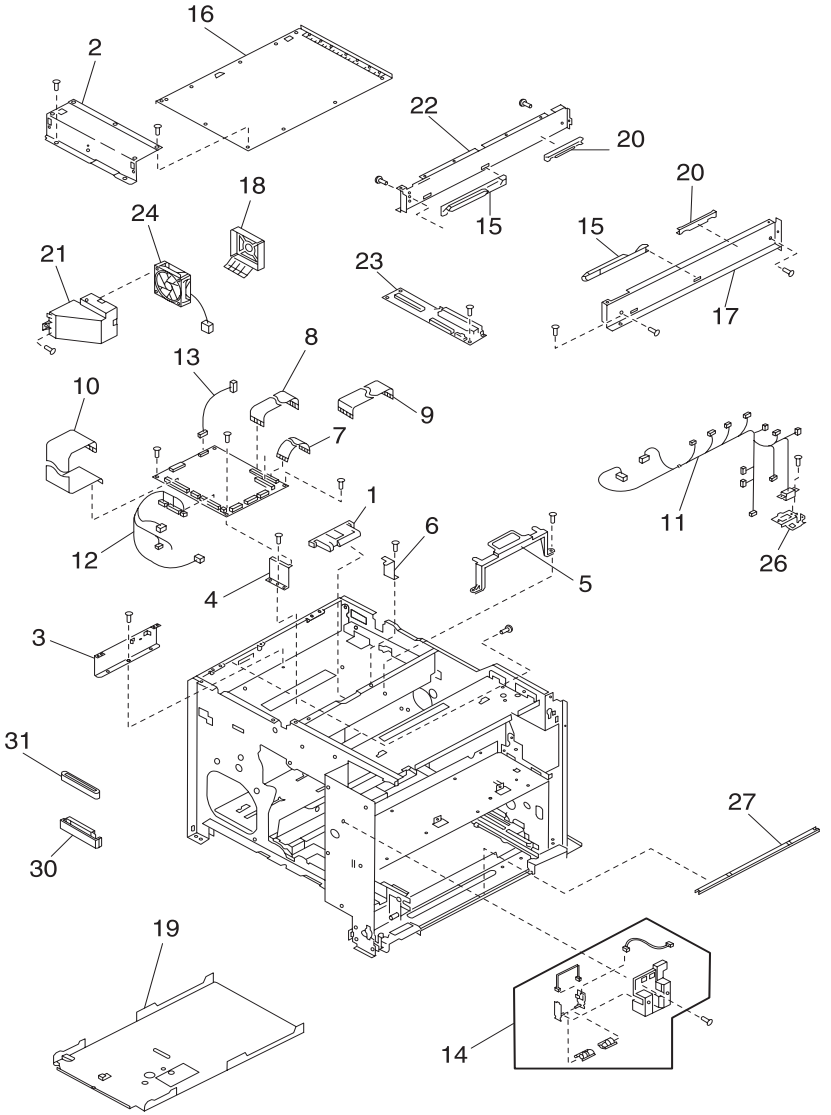
Asm-Index	Part Number	Units	Description
3-1		1	Bolt, PP 11A2340
-2	11A2429	1	Cover, Conn.
-3	11A2431	1	Panel, Guide
-4	11A2432	1	Hinge Upper, Door
-5	11A2433	1	Stopper Spring
-6	11A2031	1	Cover, Switch
-7		1	Spring, PP 11A2354
-8	11A2032	1	Size Sensor Asm, includes Ejection Sensor Board
-9	11A2033	1	Switch, Main
-10	11A2034	1	Sensor, Waste Toner Asm
-11	11A2035	1	Button, Switch
-12	11A2036	1	Hinge, Lower Door
-13			Screw, PP 11A2331
-14			Screw, PP 11A2331
-15	11A2037	1	PCB, H.V. Separator
-16	11A2038	1	Converter H.V.

Assembly 4: Major Assemblies (Top/Bottom)



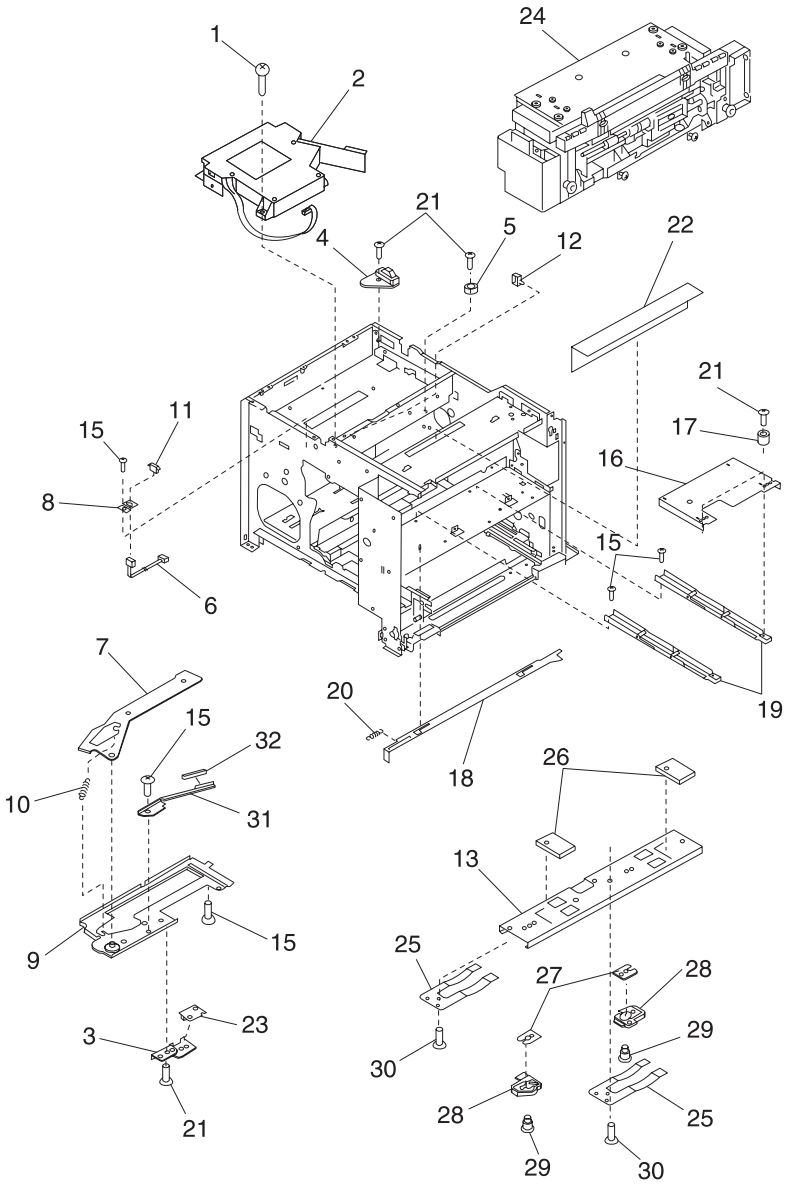
Asm-Index	Part Number	Units	Description
4-1	11A2039	1	Stop, Left
-2	11A2040	1	Cover, W/ Label
-3	11A2041	1	Foot, Front
-4	11A2042	1	Cover, Bottle
-5		1	Connector, 3P, PP 11A2389
-6		1	Clamp, Cord, PP 11A2389
-7		1	Clamp, PP 11A2389
-8		2	Clip, PP 11A2389
-9			Screw, PP 11A2331
-10	11A2043	1	Cross-member
-11			Screw, PP 11A2331
-12	11A2044	1	Latch, Roller
-13			Screw, PP 11A2340
-14			See “Paper, Side Exit Asm” on page 7-54
-15			See “Paper Drive” on page 7-42
-16			See “Cleaning Belt Drive Solenoid” on page 7-28
-17			See “Transfer Drum Cleaning” on page 7-66
-18			See “Paper Pickup” on page 7-46
-19	11A2719	1	Shield, Rear
-20	11A2720	1	Handle, Oil Bottle
-21	11A2737	1	Screw, Pivot
-22	11A2746	1	Stud, Pivot

Assembly 5: DC Controller / Video Controller Board



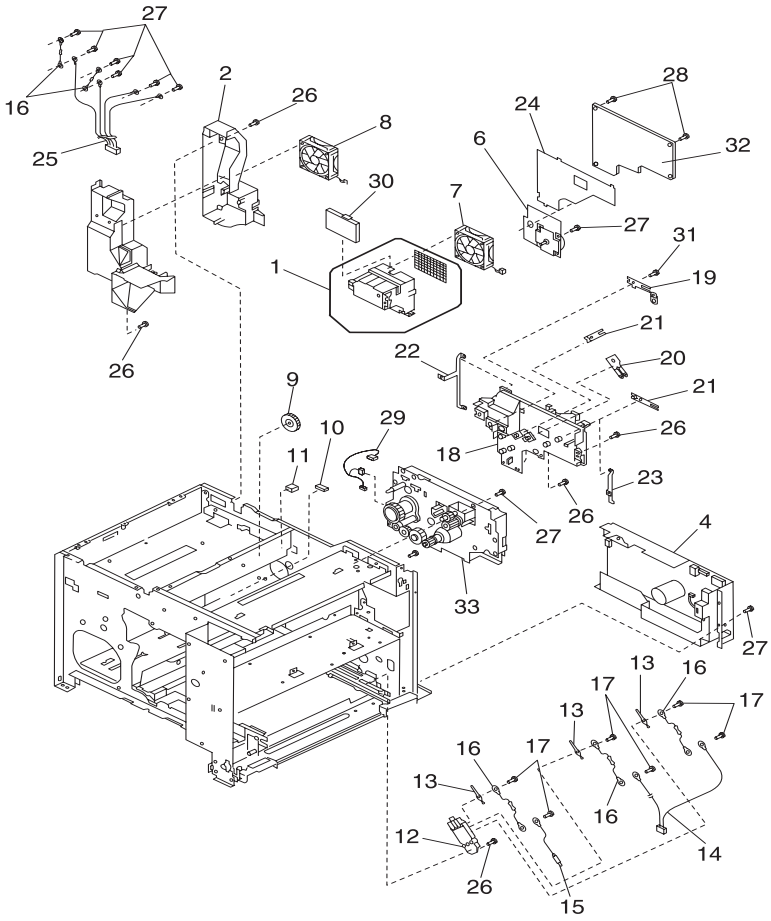
Asm-Index	Part Number	Units	Description
5-1	11A2045	1	Holder, Cable
-2	11A2046	1	Cover, Upper Plate
-3	11A2047	1	Mount, DC Controller
-4	11A2048	1	Mount, DC Controller
-5	11A2049	1	Cover, DC Controller
-NS	11A2742	1	Ferrite Core (mounts to #5)
-6	11A2050	1	Mount, DC Controller
-7	11A2051	1	Cable
-8	11A2052	1	Cable
-9	11A2053	1	Cable
-10	11A2054	1	Cable
-11	11A2055	1	Cable, DC Rear
-12	11A2056	1	Cable, DC Front
-13	11A2057	1	Cable, Density Adj. Panel
-14	11A2058	1	Sensor, Oil Asm
-15	11A2059	2	Guide, Rail
-16	11A2060	1	Plate, Cover
-17	11A2061	1	Plate, RH
-18	11A2062	1	Plate, Fan Duct
-19	11A2063	1	Crossmember
-20	11A2064	2	Guide, Rail
-21	11A2065	1	Duct, Fan
-22	11A2066	1	Plate, LH
-23	11A2067	1	Connector PCB
-24	11A2068	1	Fan, Video Controller
-25			Screw, PP 11A2331
-26	11A2069	1	Bracket, Opt Conn.
-27	11A2070	1	Cover, Cable
-28			Screw, PP 11A2331
-29	11A2071	1	PCB, DC Controller
-30	11A2721	1	Holder, Ferrite Core
-31	11A2713	1	Ferrite Core
-32			See “Video Controller Board” on page 7-72.

Assembly 6: Laser



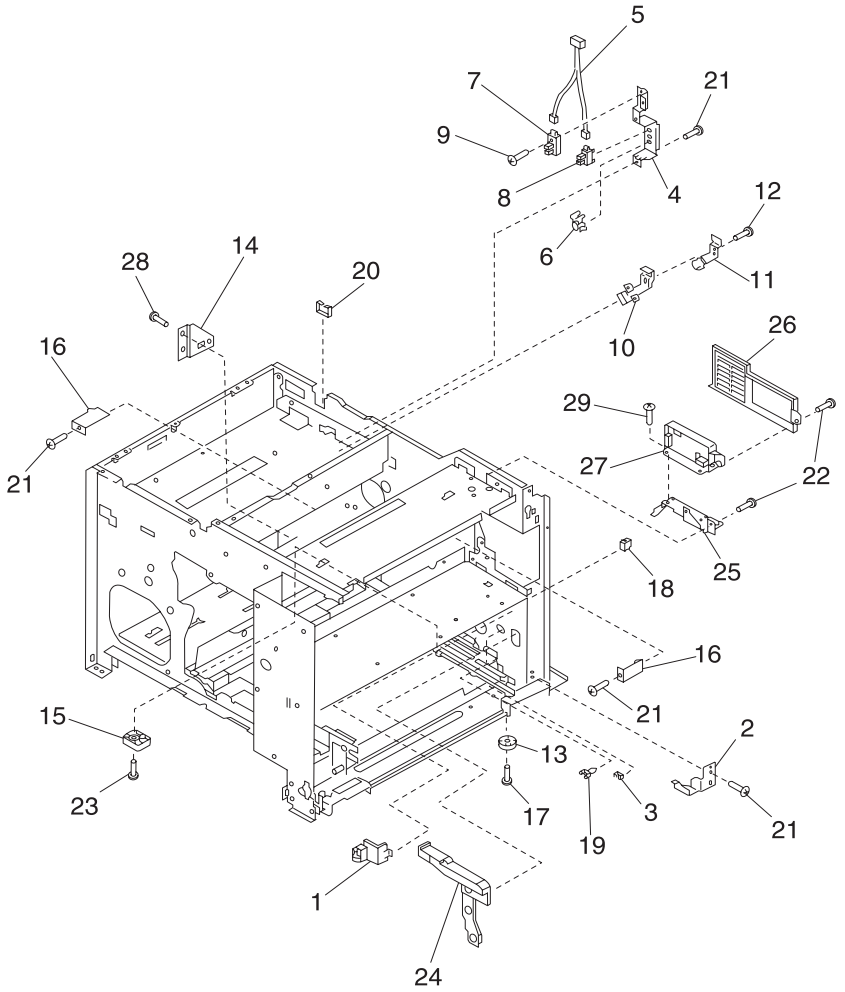
Asm-Index	Part Number	Units	Description
6-1			Screw, PP 11A2331
-2	11A2072	1	Printhead
-3	11A2073	1	Holder, Sensor
-5	11A2074	1	Stopper, Laser, PCB
-6	11A2075	1	Cable, Toner Sensor
-7	11A2076	1	Shutter, Laser
-8	11A2077	1	Mount, Panel
-9	11A2078	1	Bracket, Shutter
-10		1	Spring, PP 11A2354
-11		1	Connector 3 Pin, PP 11A2389
-12		1	Clip, Cable, PP 11A2389
-13	11A2079	1	Rail, PC Cartridge
-15			Screw, PP 11A2331
-16	11A2081	1	Plate, Slide
-17	11A2082	2	Guide, Fuser
-18	11A2083	1	Rod, ON/Off
-19	11A2084	2	Rail Asm
-20		1	Spring, PP 11A2354
-21			Screw, PP 11A2331
-22	11A2085	1	Sheet, Caution
-23	11A2086	1	PCB, Sensor, Toner Empty (Receive)
-24			See “Fuser” on page 7-68
-25	11A2552	2	Spring, Leaf
-26	11A2553	2	Damper
-27	11A2554	2	Damper
-28	11A2555	2	Spacer, Rail
-29			Screw, PP 11A2331
-30			Screw, PP 11A2331
-31	11A2550	1	Spring, Leaf
-32	11A2551	1	Damper

Assembly 7: Drive, Main



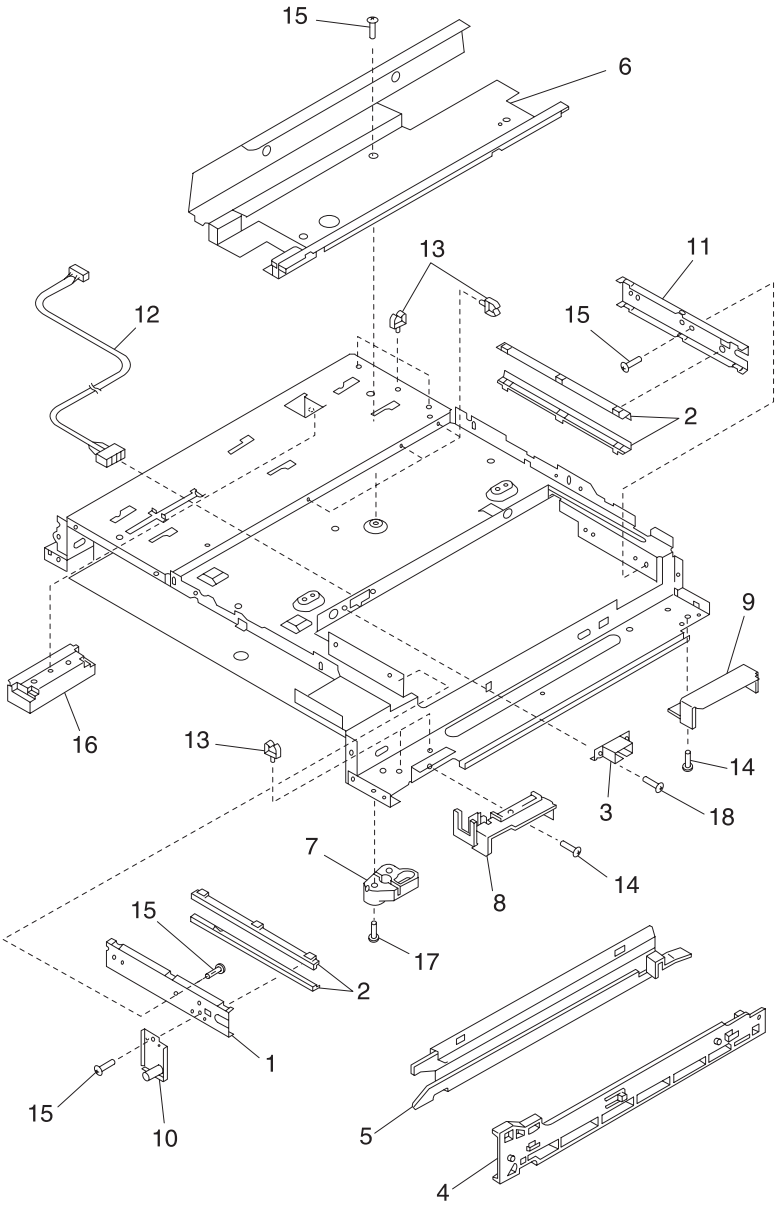
Asm-Index	Part Number	Units	Description
7-1	11A2087	1	Duct Fuser Fan Asm
-2	11A2088	1	Duct, Upper Fan
-3	11A2089	1	Duct, Lower Fan
-4	11A2090	1	LVPS 110 V
-4	11A2091	1	LVPS 220 V
-6	11A2092	1	Motor, Main Drive
-7	11A2093	1	Fan, Fuser
-8	11A2094	1	Fan, DC Controller, Laser
-9	11A2095	1	Gear, Cartridge Press
-10		1	Connector, Snap Tite, PP 11A2389
-11		1	Connector, 5 Pin Male, PP 11A2389
-12	11A2096	1	Mount, HV Terminal
-13	11A2097	3	Spring, Leaf
-14	11A2098	1	Cable, Transfer HV
-15	11A2099	1	Cable, Discharge
-16	11A2100	5	Resistor
-17			Screw, PP 11A2340
-18	11A2101	1	Mount, Mechanical Controller
-19	11A2102	1	Plate, HV Contact
-20	11A2103	1	Plate, HV Contact
-21	11A2104	2	Plate, HV Contact
-22	11A2105	1	Grd, Right
-23	11A2106	1	Grd, Left
-24	11A2107	1	Sheet, Mech Controller, Insulator
-25	11A2108	1	Cable, HV
-26			Screw, PP 11A2331
-27			Screw, PP 11A2331
-28			Screw, PP 11A2331
-29	11A2109	1	Cable, Clutch, Brake
-30	11A2110	1	Filter, Ozone
-31			Screw, PP 11A2331
-32	11A2111	1	Board, Mech Controller
-33			See “Printer Drive” on page 7-32

Assembly 8: Density Adjustment Panel



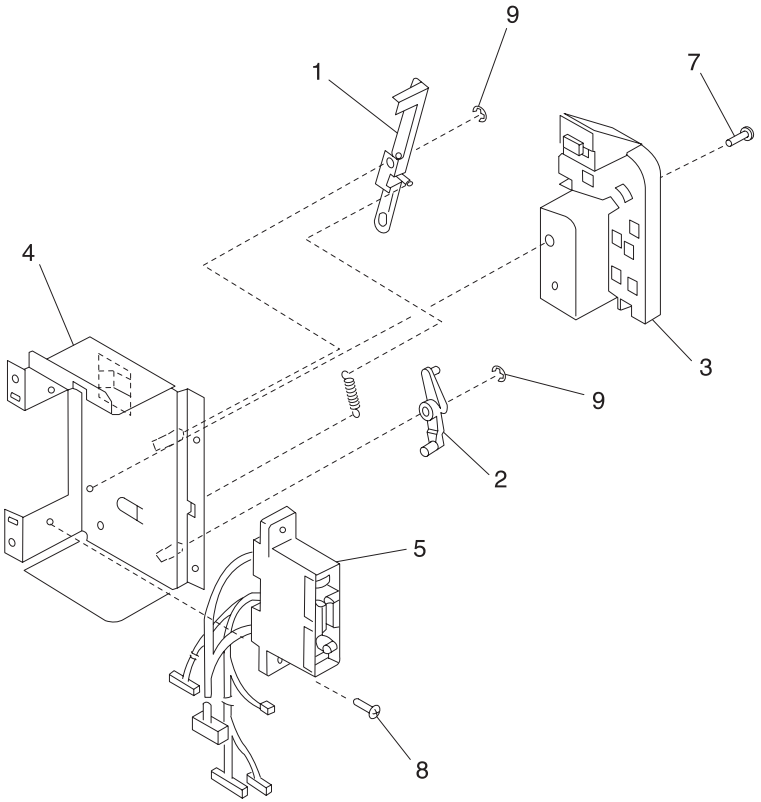
Asm-Index	Part Number	Units	Description
8-1	11A2112	1	Cover, Cleaning
-2	11A2113	1	Stopper, Right
-3		1	Clamp, Cable, PP 11A2389
-4	11A2114	1	Plate, Sensor
-5	11A2115	1	Cable, Rotary
-6		1	Bushing, PP 11A2379
-7	11A2116	1	Sensor, Photo
-8	11A2117	1	IC TLP1230, Sensor
-9			Screw, W/Washer, PP 11A2340
-10	11A2118	1	Holder, Contact
-11	11A2119	1	Contact
-12			Screw, PP 11A2340
-13	11A2120	1	Foot, Rear
-14	11A2121	1	Crossmember
-15	11A2122	1	Mount, Positioning
-16	11A2123	2	Guide, Drive Mounting
-17			Screw, W/Washer, PP 11A2340
-18		1	Conn., 2 Pin, PP 11A2389
-19		1	Clip, PP 11A2389
-20		1	Edge Saddle, PP 11A2389
-21			Screw, PP 11A2331
-22			Screw, PP 11A2331
-23			Screw, PP 11A2340
-24	11A2124	1	Rail, Cleaner
-25	11A2125	1	Mount, Panel
-26	11A2126	1	Bezel, Density Adj
-27	11A2127	1	Panel, Density Adj PCB
-28			Screw, PP 11A2331
-29			Screw, PP 11A2331

Assembly 9: Bottom Plate



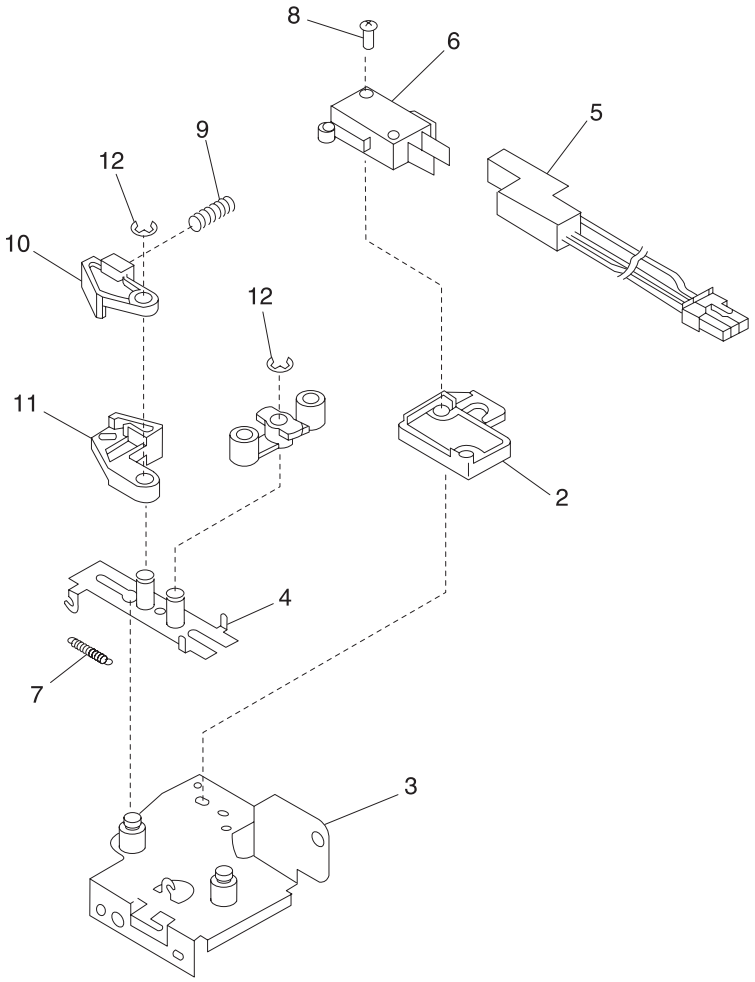
Asm-Index	Part Number	Units	Description
9-1	11A2128	1	Plate, Left, Slide Out
-2	11A2129	4	Guide, Slide
-3	11A2130	1	Shield, Conn.
-4	11A2131	1	Rail, Cassette Rt
-5	11A2132	1	Rail, Cassette Lft
-6	11A2133	1	Crossmember Rail
-7	11A2134	1	Foot, Front
-8	11A2135	1	Grip, Front, Right
-9	11A2136	1	Grip, Rear, Right
-10	11A2137	1	Support, Rock Pin
-11	11A2138	1	Plate, Right, Slide Out
-12	11A2139	1	Cable, Bottom
-13			Clip, PP 11A2389
-14			Screw, PP 11A2331
-15			Screw, PP 11A2331
-16	11A2748	2	Grip, Front and Rear, Left
-17			Screw, PP 11A2340
-18			Screw, PP 11A2340

Assembly 10: Door Switch, Upper



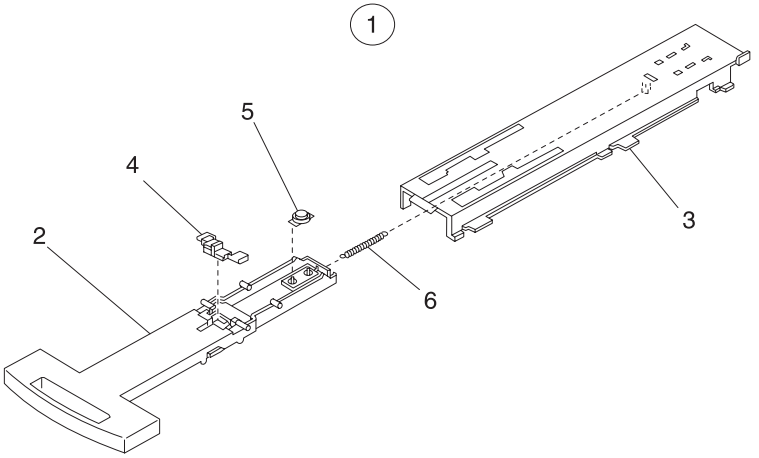
Asm-Index	Part Number	Units	Description
10-1	11A2141	1	Arm, Door 1
-2	11A2142	1	Arm, Door 2
-3	11A2143	1	Guide, Cable
-4	11A2144	1	Mount, Switch Upper
-5	11A2145	1	Cable, Control
-6		1	Spring, PP 11A2354
-7			Screw, PP 11A2331
-8			Screw, PP 11A2331
-9			E-Ring, PP 11A2373

Assembly 11: Door Switch, Lower



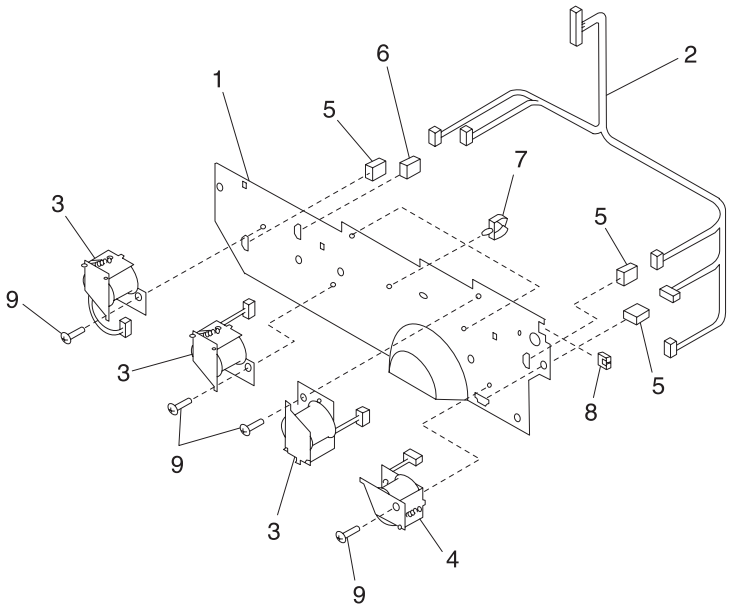
Asm-Index	Part Number	Units	Description
11-1	11A2146	1	Arm, Rocker
-2	11A2147	1	Plate, Insulating Switch
-3	11A2148	1	Mount, Switch Lower
-4	11A2149	1	Plate, Slide
-5	11A2150	1	Cable, Switch
-6	11A2151	1	Switch
-7		1	Spring, PP 11A2354
-8			Screw, PP 11A2340
-9		1	Spring, PP 11A2354
-10	11A2152	1	Arm, Push Upper
-11	11A2153	1	Arm, Push Lower
-12			E-RIng, PP 11A2373

Assembly 12: Ejector Lever



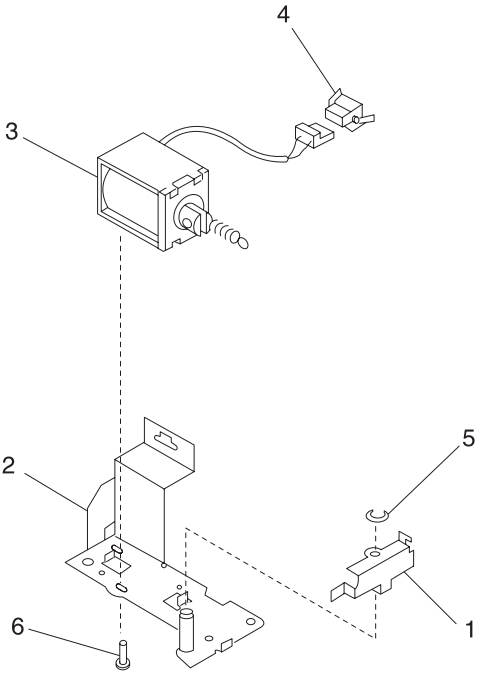
Asm-Index	Part Number	Units	Description
12-1	11A2740	1	Ejector Asm
-2	11A2154	1	•Ejector
-3	11A2155	1	•Guide
-4	11A2156	1	•Hook
-5	11A2157	1	•Oil Damper
-6		1	•Spring, PP 11A2354

Assembly 13: Solenoid Plate



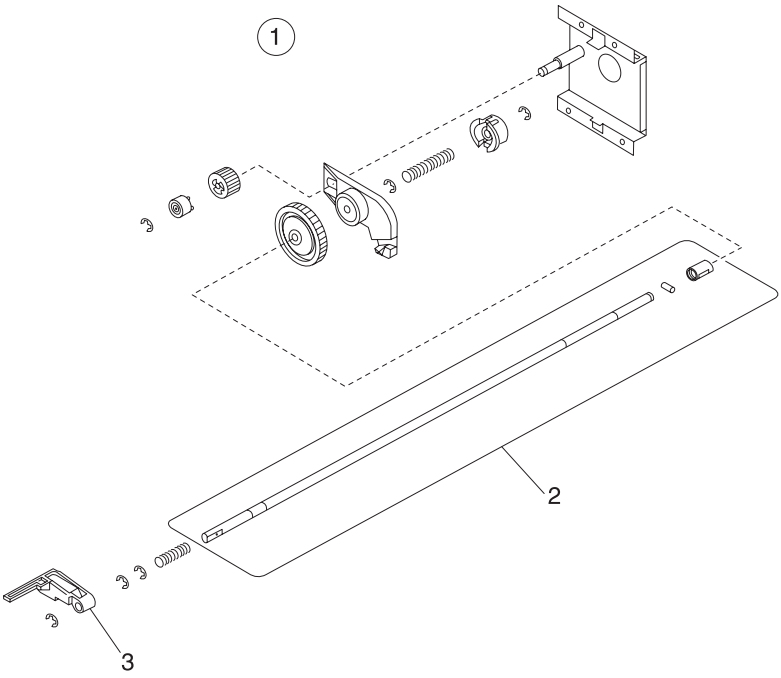
Asm-Index	Part Number	Units	Description
13-1	11A2158	1	Mount, Solenoid
-2	11A2159	1	Cable
-3	11A2160	3	Solenoid
-4	11A2161	1	Solenoid
-5		3	Conn. 2 Pin, PP 11A2389
-6		1	Conn. 3 Pin, PP 11A2389
-7			Clip, PP 11A2389
-8			Clip, PP 11A2389
-9			Screw, PP 11A2331

Assembly 14: Cleaning Belt Drive Solenoid



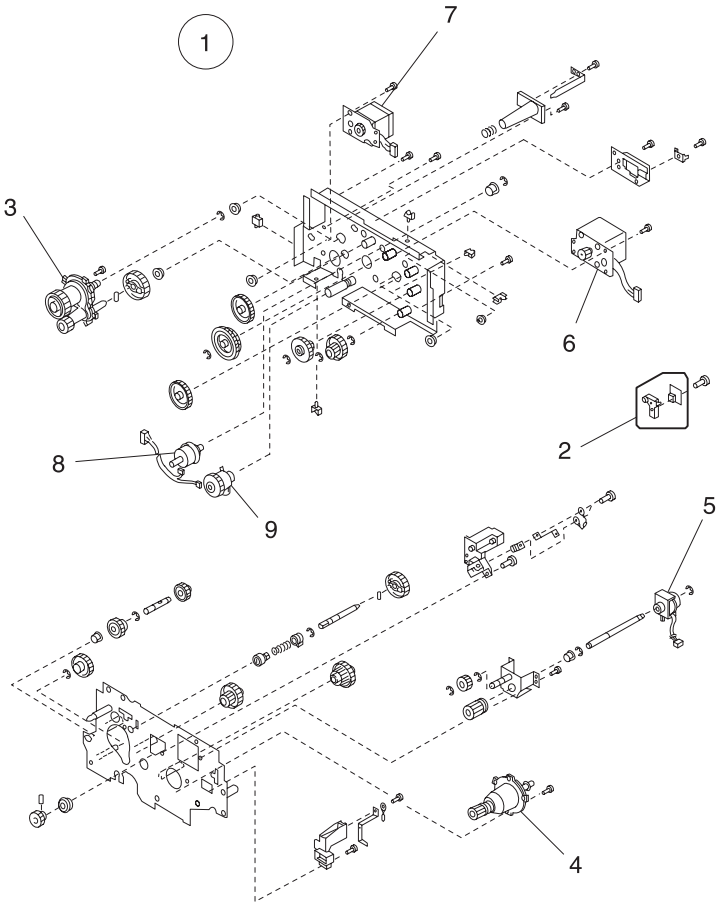
Asm-Index	Part Number	Units	Description
14-1	11A2162	1	Lever, Solenoid
-2	11A2163	1	Mount, Solenoid
-3	11A2164	1	Solenoid
-4		1	Conn. 2 Pin, PP 11A2389
-5			E-Ring, PP 11A2373
-6			Screw, PP 11A2340

Assembly 15: Rotary Manual Feed



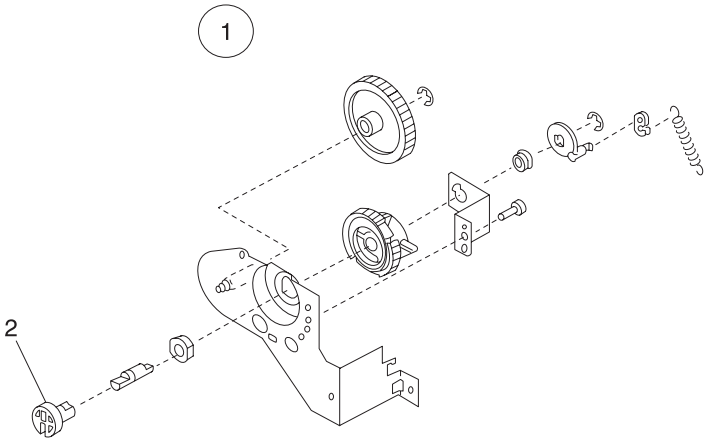
Asm-Index	Part Number	Units	Description
15-1	11A2165	1	Feeder, Rotary Manual Asm
-2	11A2167	1	•Shaft
-3	11A2166	1	•Hook, Lock

Assembly 16: Printer Drive



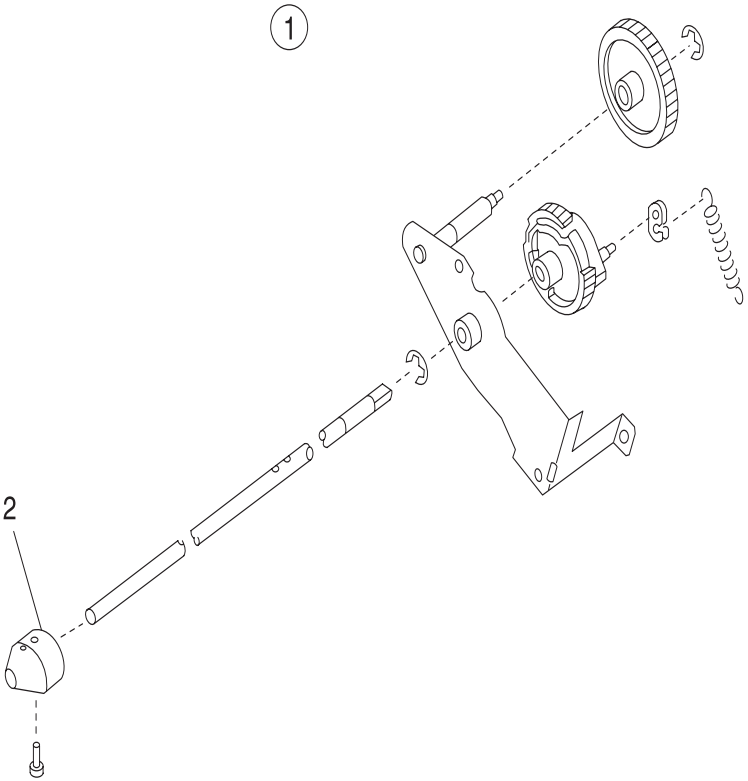
Asm-Index	Part Number	Units	Description
16-1	11A2168	1	Drive Asm complete
-2	11A2169	1	• Toner Empty Sensor (Beam)
-3	11A2170	1	• Bearing Asm, Rotary Unit
-4	11A2171	1	• Bearing Asm, Transfer Drum
-5	11A2172	1	• Clutch Asm, Fuser Drive
-6	11A2173	1	• Motor Asm, Transfer Drum
-7	11A2174	1	• Motor Asm, Rotary Unit
-8	11A2175	1	• Clutch Asm, Rotary Unit
-9	11A2176	1	• Clutch Asm, Brake
-10		1	• Bearing, PP 11A2379

Assembly 17: Transfer Drum Cleaning Drive



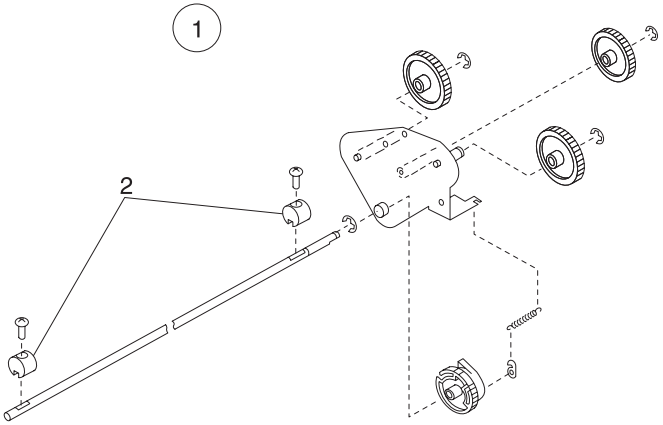
Asm-Index	Part Number	Units	Description
17-1	11A2177	1	Transfer Drum Clean Drive Asm
-2	11A2178	1	•Coupler

Assembly 18: Discharge Roller Drive



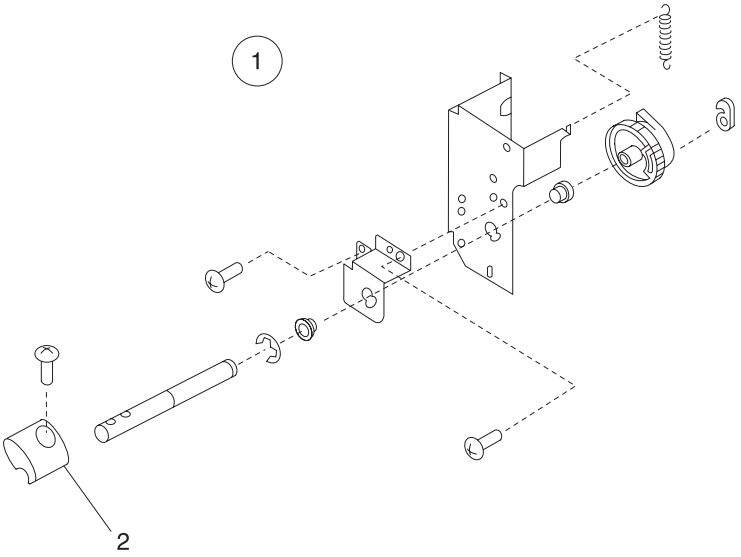
Asm-Index	Part Number	Units	Description
18-1	11A2179	1	Discharge Roller Drive Asm
-2	11A2180	1	•Cam

Assembly 19: Drum Lift



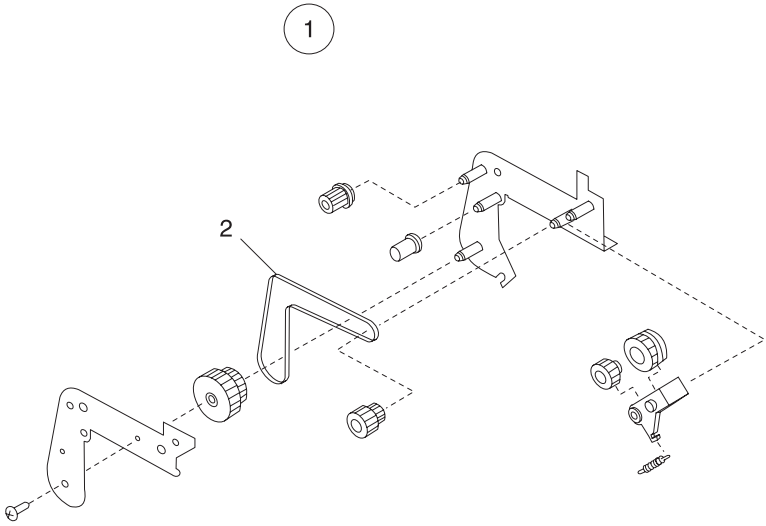
Asm-Index	Part Number	Units	Description
19-1	11A2181	1	Drum Lift Asm
-2	11A2182	2	•Cam

Assembly 20: Attraction Roller Drive



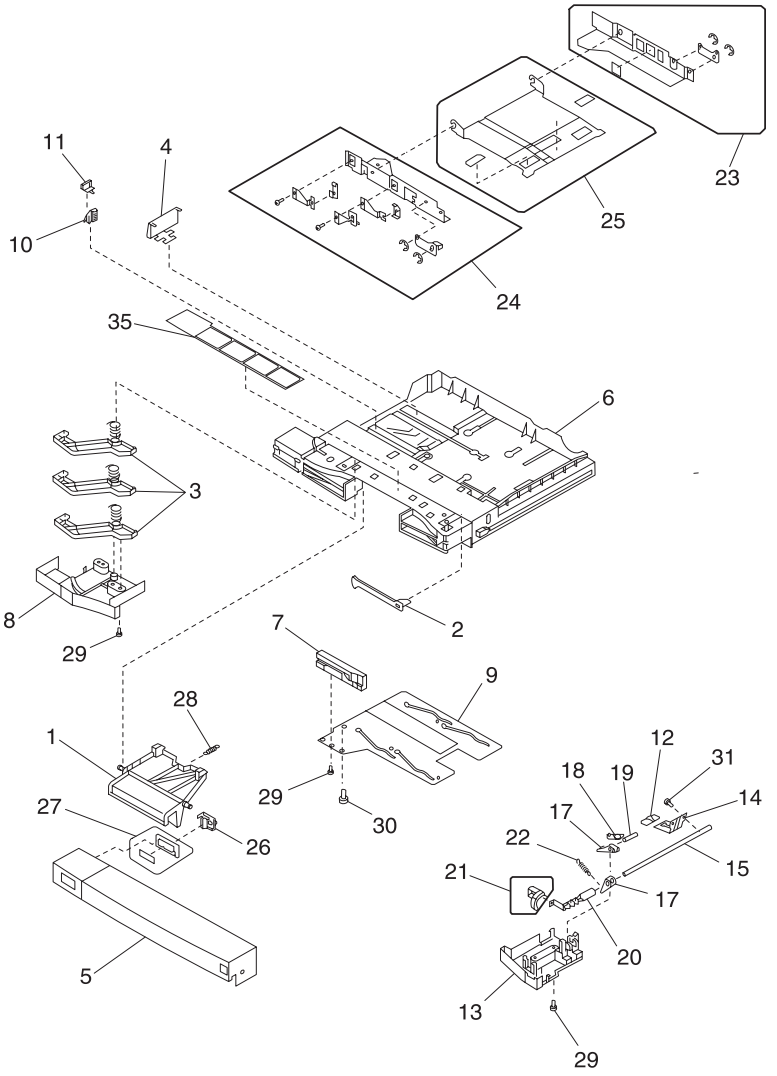
Asm-Index	Part Number	Units	Description
20-1	11A2183	1	Attraction Roller Drive Asm
-2	11A2184	1	•Cam

Assembly 21: Paper Drive



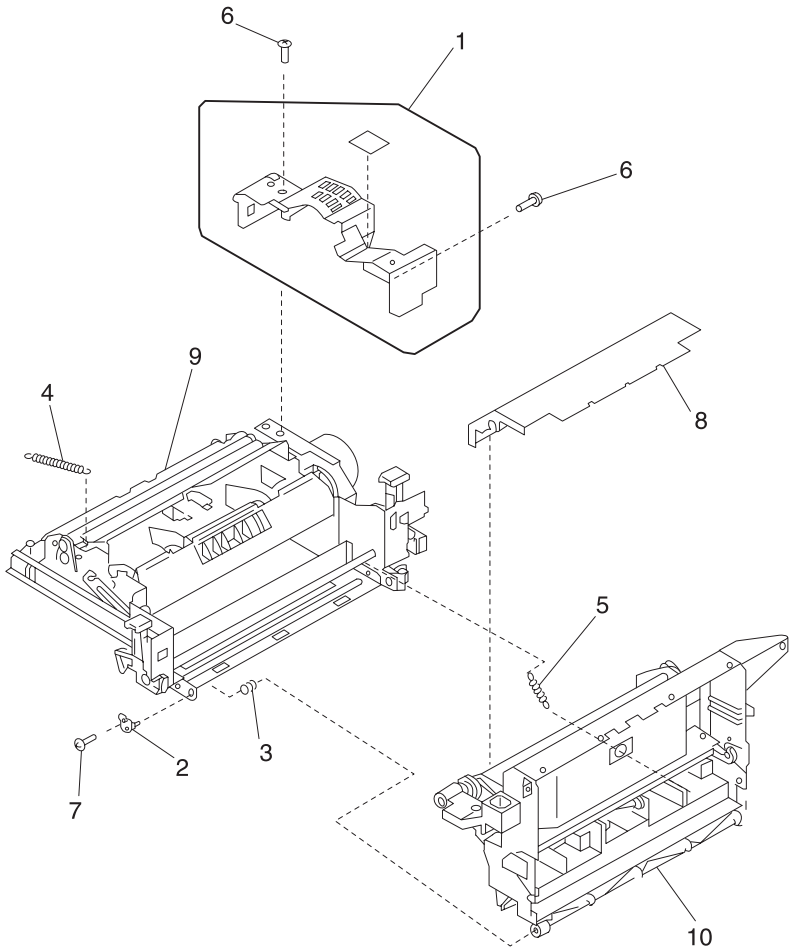
Asm-Index	Part Number	Units	Description
21-1	11A2185	1	Delivery Drive Asm
-2	11A2186	1	• Belt

Assembly 22: Universal Cassette



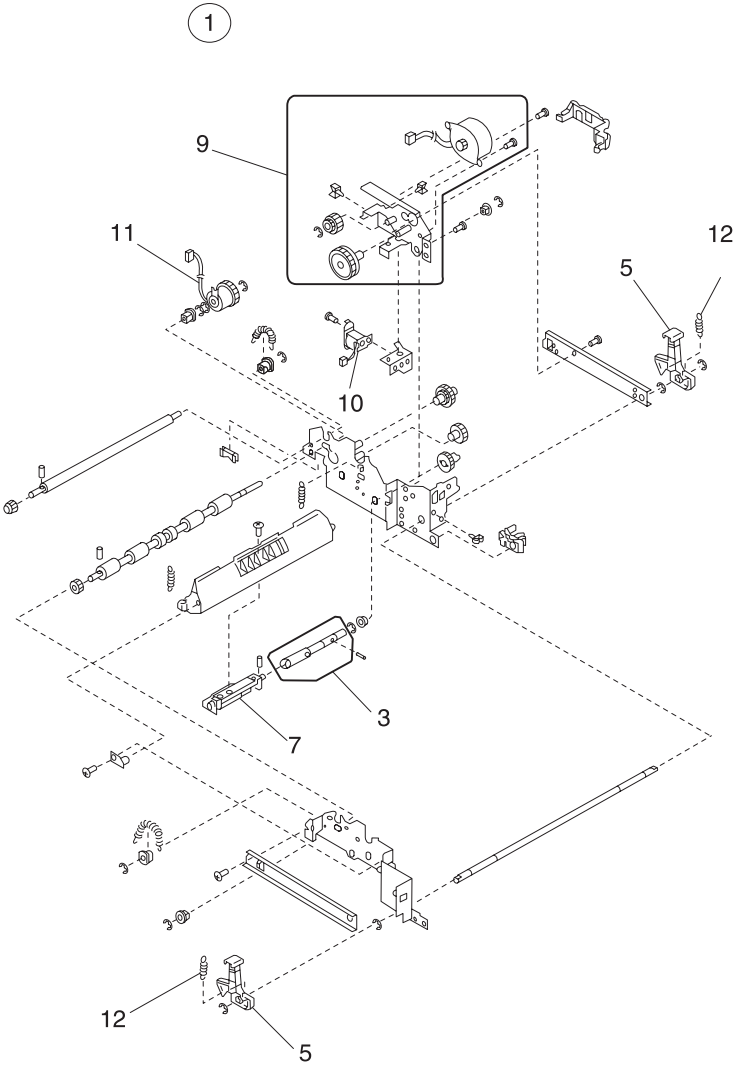
Asm-Index	Part Number	Units	Description
22-1	11A2187	1	Lever, Release Lock
-2	11A2188	1	Arm, Release
-3	11A2189	3	Lever, Size
-4	11A2190	1	Panel, Limit Rear
-5	11A2191	1	Cover, Cassette
-6	11A2192	1	Body Cassette
-7	11A2193	1	Cam, Size
-8	11A2194	1	Cover, Size
-9	11A2195	1	Plate, Cam
-10	11A2196	1	Button, Release
-11	11A2197	1	Cover, Release
-12	11A2198	1	Cap, Lifting
-13	11A2199	1	Cover, Lower
-14	11A2200	1	Plate
-15	11A2201	1	Rod
-16	11A2202	1	Lever, Rod
-17	11A2203	1	Lever, Tension
-18	11A2204	1	Block, Pressure
-19	11A2205	1	Shaft, Tension
-20	11A2206	1	Arm, Sensor
-21	11A2207	1	Block, Display Asm
-22		1	Spring, PP 11A2354
-23	11A2208	1	Plate, Rear Asm
-24	11A2209	1	Plate, Front Asm
-25	11A2210	1	Plate, Lift Asm
-26	11A2211	1	Knob, Size
-27	11A2212	1	Plate, Size
-28		1	Spring, PP 11A2354
-29		1	Screw, PP 11A2331
-30		1	Screw, PP 11A2340
-31		1	Screw, PP 11A2331
-32	11A2730	3	Spring, Lever
-35	11A2728	1	Label, Universal

Assembly 23: Paper Pickup



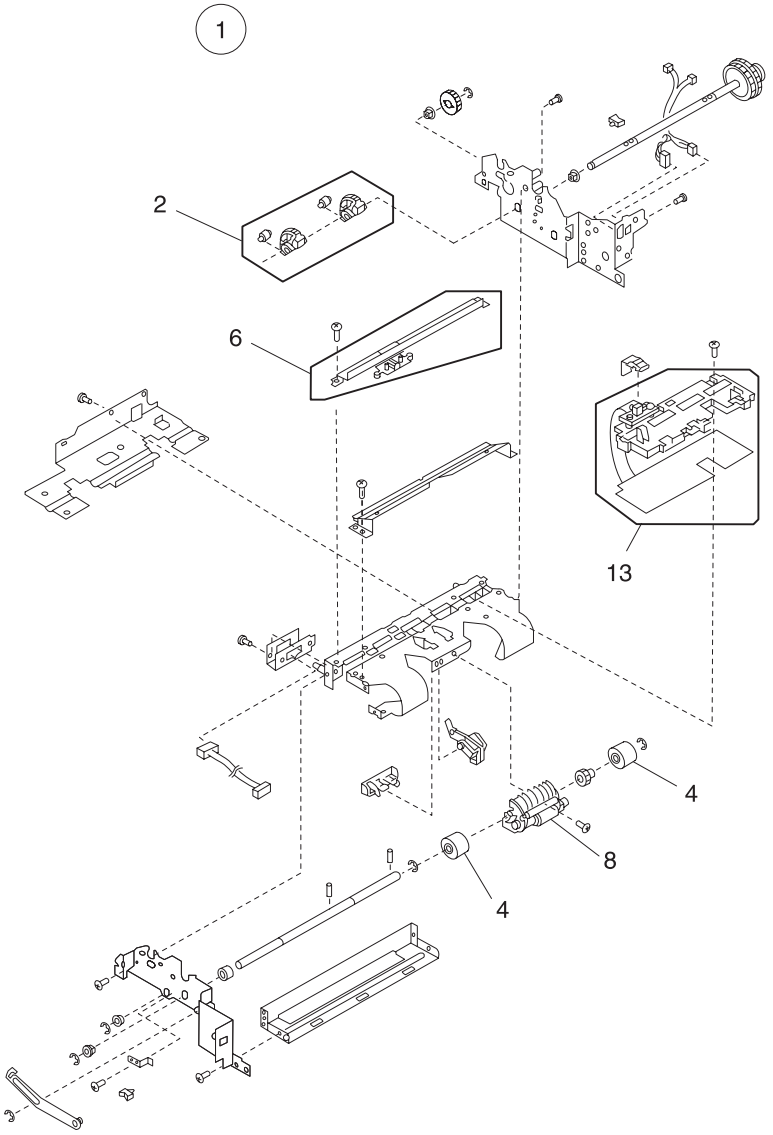
Asm-Index	Part Number	Units	Description
23-1	11A2213	1	Cover, Motor
-2	11A2214	1	Mount, Pivot
-3		1	Spring, PP 11A2364
-4		1	Spring, PP 11A2364
-5		1	Spring, PP 11A2364
-6		1	Screw, PP 11A2331
-7		1	Screw, PP 11A2331
-8	11A2215	1	Cover
-9			See “Cassette Paper Pickup Asm” on page 7-48
-10			See “Multipurpose Feeder Pickup Asm” on page 7-52

Assembly 24: Cassette Paper Pickup Asm



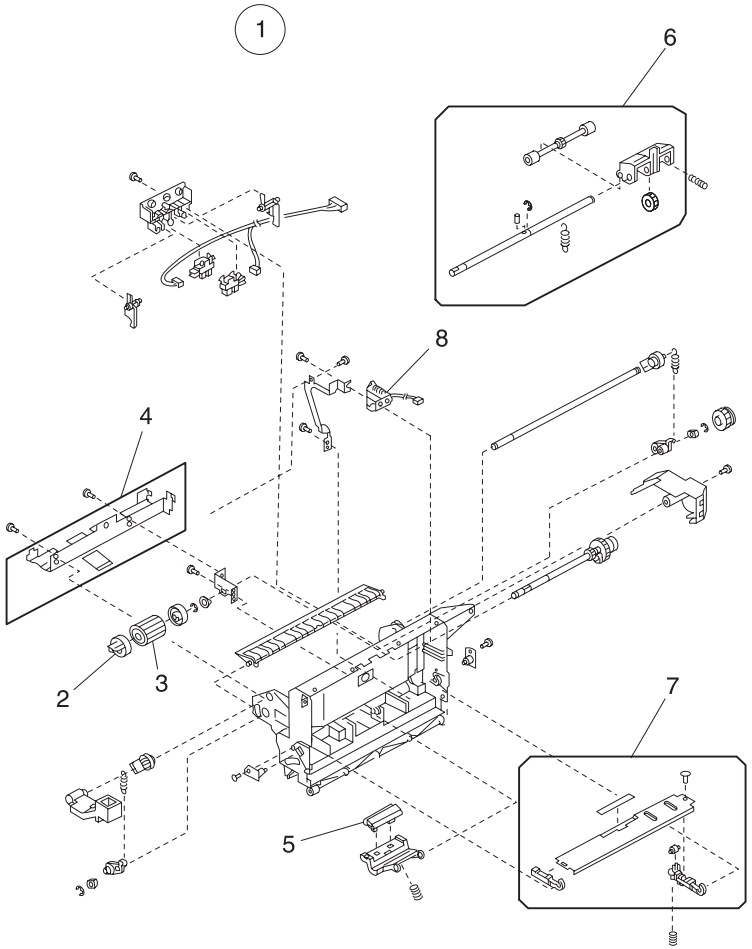
Asm-Index	Part Number	Units	Description
24-1	11A2216	1	Cassette Paper Pickup Asm
-3	11A2219	1	•Shaft Asm
-5	11A2221	2	•Lever, Lock Slide
-7	11A2223	1	•Roller, Asm Rear
-9	11A2225	1	•Motor, Paper Pickup Asm
-10	11A2226	1	•Solenoid
-11	11A2227	1	•Clutch
-12			•Spring, Lever Lock, PP 11A2364

Assembly 24: Paper Pickup Cassette (cont.)



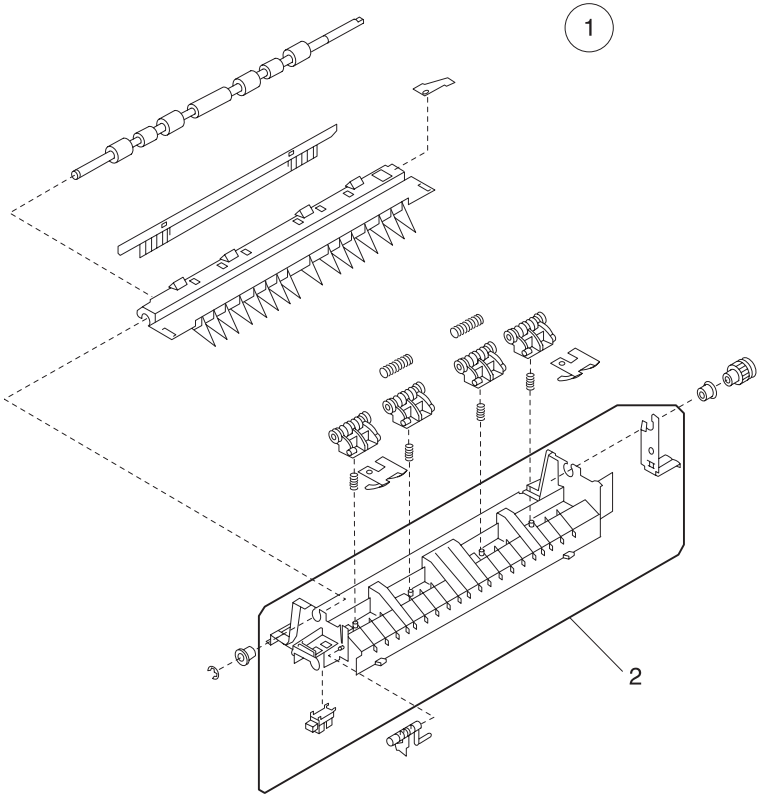
Asm-Index	Part Number	Units	Description
24-1	11A2216	1	Cassette Paper Pickup Asm
-2	11A2218	1	•Roller Asm
-4	11A2220	2	•Roller
-6	11A2222	1	•Guide Asm
-8	11A2224	1	•Roller Asm
-13	11A2228	1	•PCB Paper Pickup Asm

Assembly 25: Multipurpose Feeder Pickup Asm



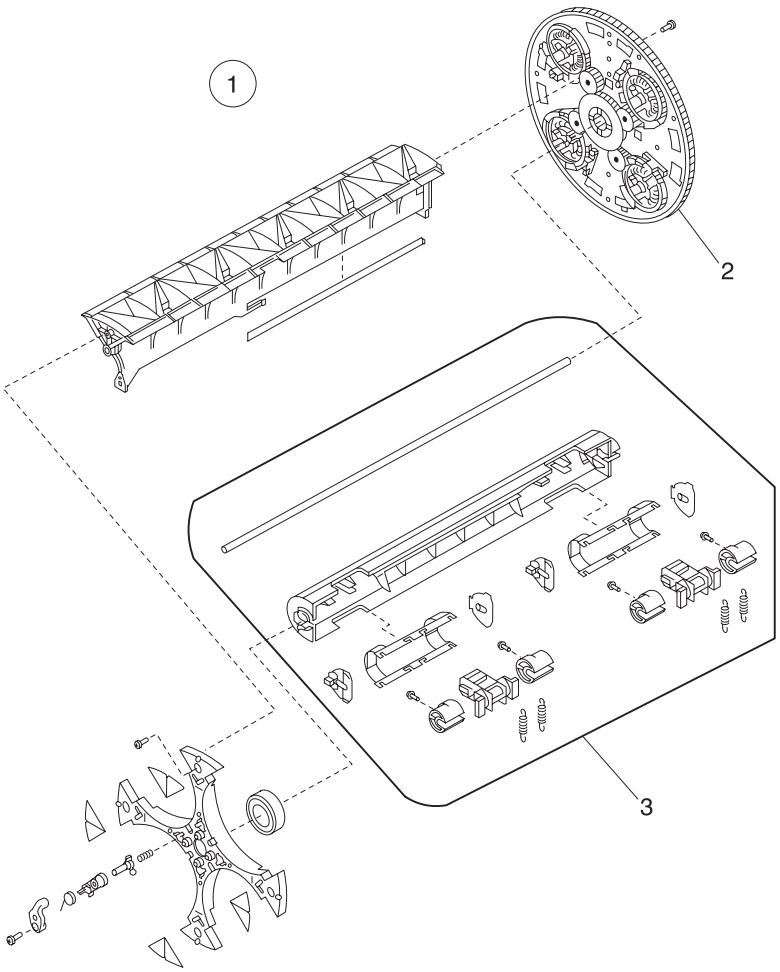
Asm-Index	Part Number	Units	Description
25-1	11A2217	1	Multipurpose Paper Pickup Asm
-2	11A2229	1	• Clip, Roller
-3	11A2230	1	• Roller, Pickup
-4	11A2231	1	• Guide, Upper Asm
-5	11A2232	1	• Pad, Main
-6	11A2233	1	• Roller, U-turn Asm
-7	11A2234	1	• Base Asm
-8	11A2235	1	• Solenoid
-9	11A2117	2	• Sensor

Assembly 26: Paper, Side Exit Asm



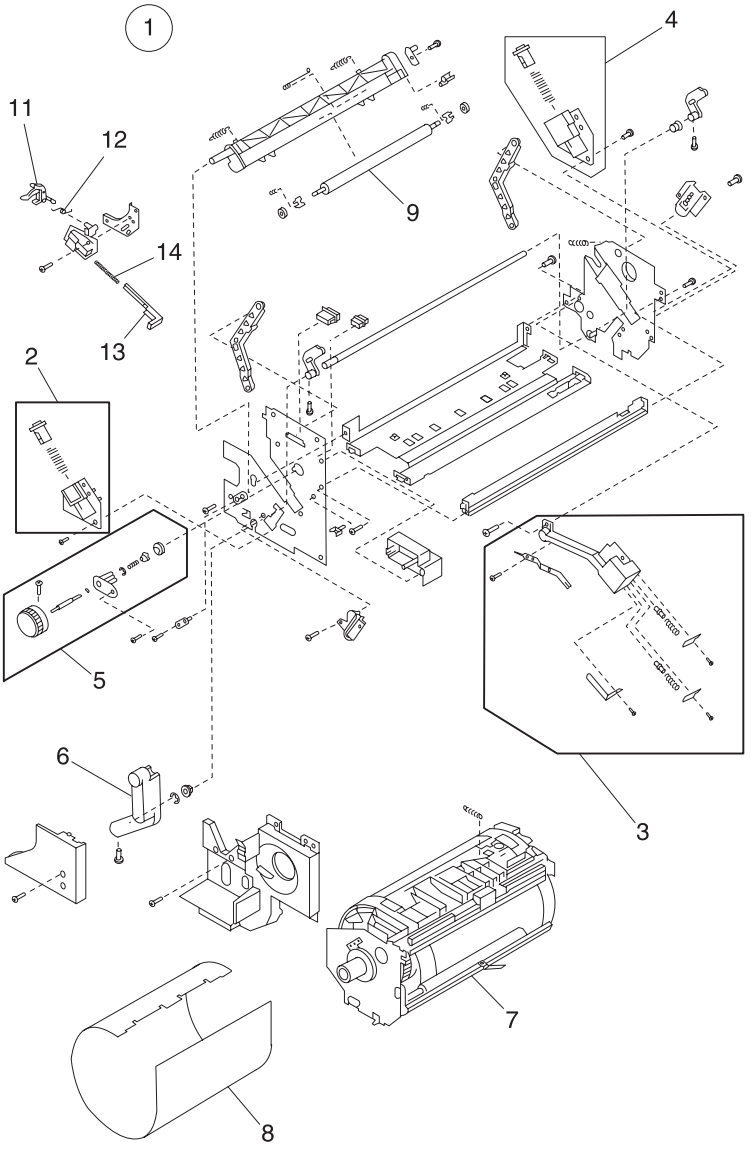
Asm-Index	Part Number	Units	Description
26-1	11A2236	1	Delivery Asm
-2	11A2237	1	• Frame Asm, Without Rollers
-3	11A2117	1	• Sensor, Cleaning Belt

Assembly 27: Developing Rotary Asm



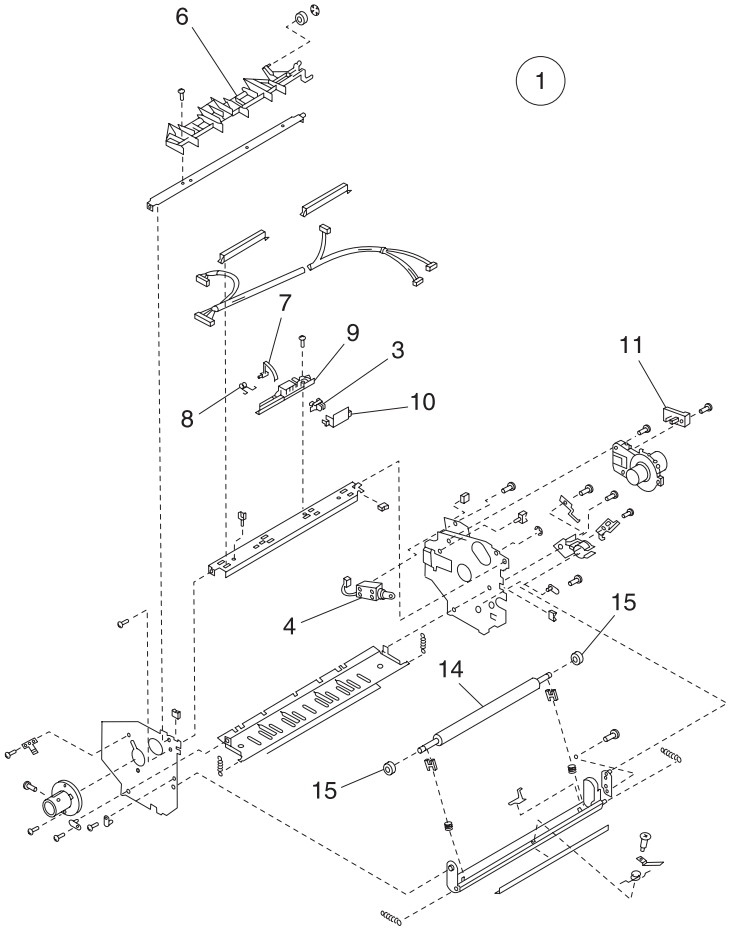
Asm-Index	Part Number	Units	Description
27-1	11A2238	1	Rotary Asm
-2	11A2239	1	•Rotary Disc
-3	11A2240	1	•Rotary Center Asm

Assembly 28: Transfer Drum Mounting Asm



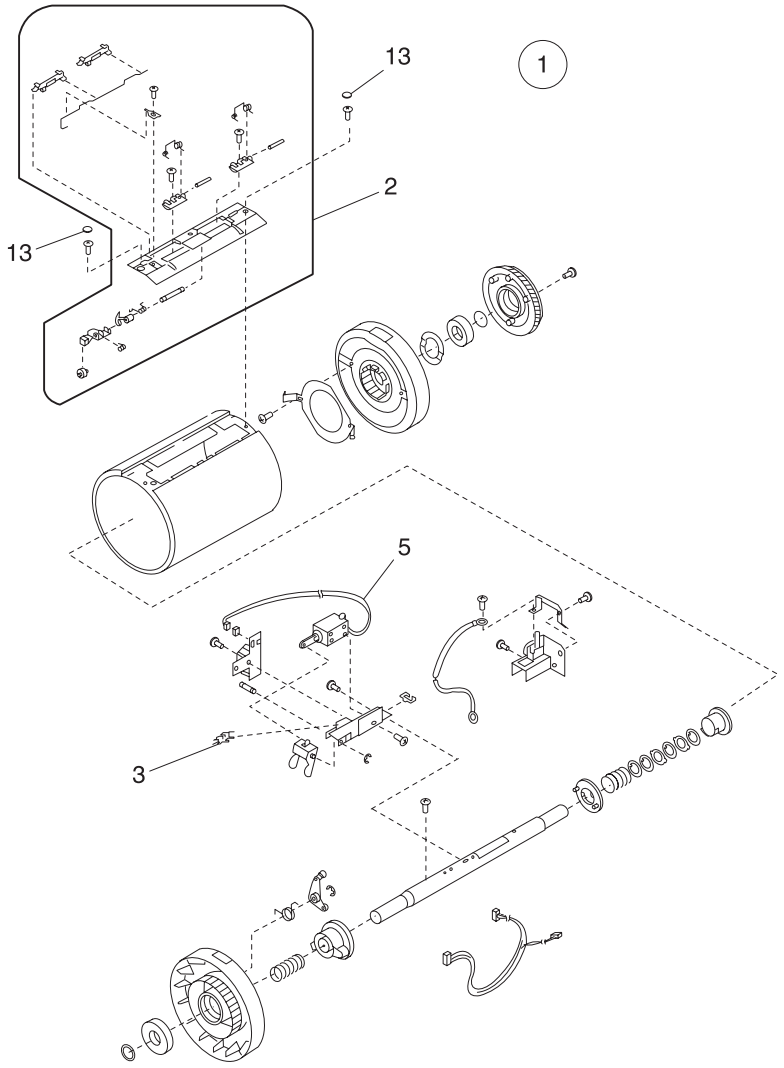
Asm-Index	Part Number	Units	Description
28-1	11A2241	1	Transfer Drum Holder Asm
-2	11A2243	1	•Slide, Front Asm
-3	11A2244	1	•Contact, HV Asm
-4	11A2245	1	•Slide, Rear Asm
-5	11A2246	1	•Knob, Manual Asm
-6	11A2242	1	•Lever, Operation
-7			•“Transfer Drum” on page 7-60
-8	11A2415	1	Sheet, Transfer Drum
-9	11A2703	1	Roller, Attraction
-10	11A2704	1	Brkt., Used Toner Sensor
-11	11A2705	1	Arm, Lock, Used Toner
-12			Spring, PP 11A2364
-13	11A2707	1	Arm, Lock, Cartridge
-14			Spring, PP 11A2364

Assembly 29: Transfer Drum



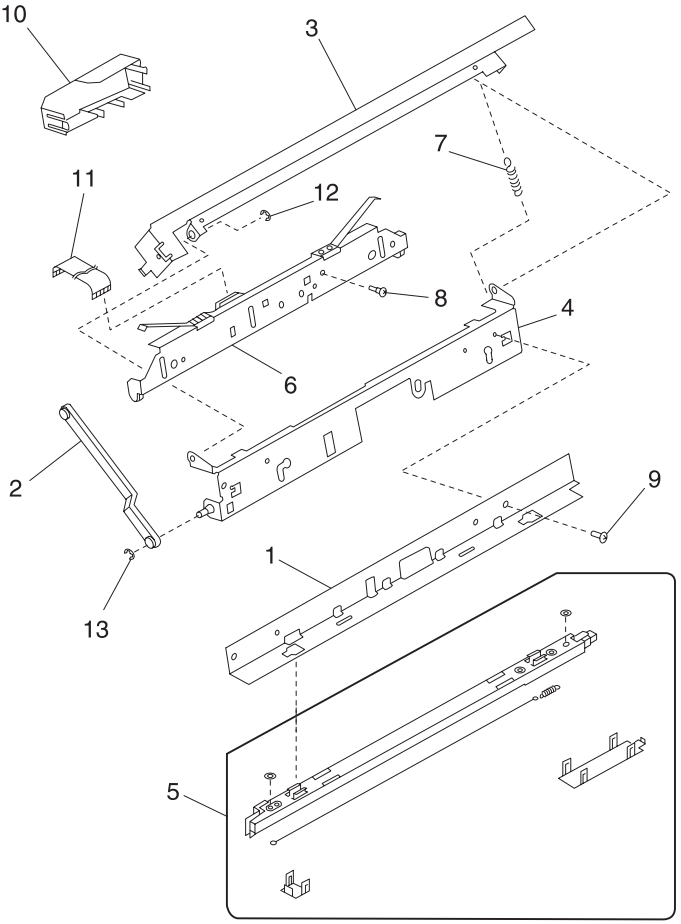
Asm-Index	Part Number	Units	Description
29-1	11A2247	1	Drum, Transfer Asm
-3	11A2117	1	•Sensor
-4	11A2700	1	•Solenoid
-6	11A2702	1	•Claw, Separation
-7	11A2709	1	•Arm, Sensing
-8			•Spring, PP 11A2354
-9	11A2711	1	•Cover, Sensor
-10	11A2712	1	•Cover, Sensor
-11	11A2116	1	•Sensor
-14	11A2454	1	•Roller, Discharge
-15	11A2452	2	•Roller, Static

Assembly 29: Transfer Drum (Cont.)



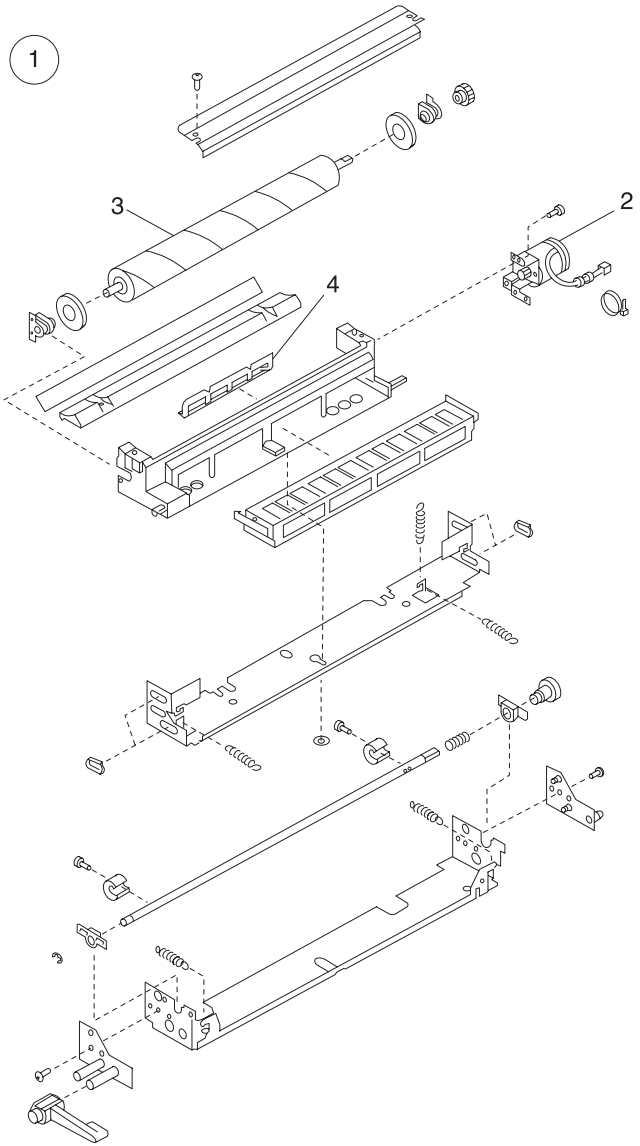
Asm-Index	Part Number	Units	Description
29-1	11A2247	1	Drum, Transfer Asm
-2	11A2248	1	• Gripper, Paper Asm
-3	11A2117	1	• Sensor
-5	11A2701	1	• Solenoid
-13	11A2453	2	• Cap, Plastic

Assembly 30: Density Sensor Asm



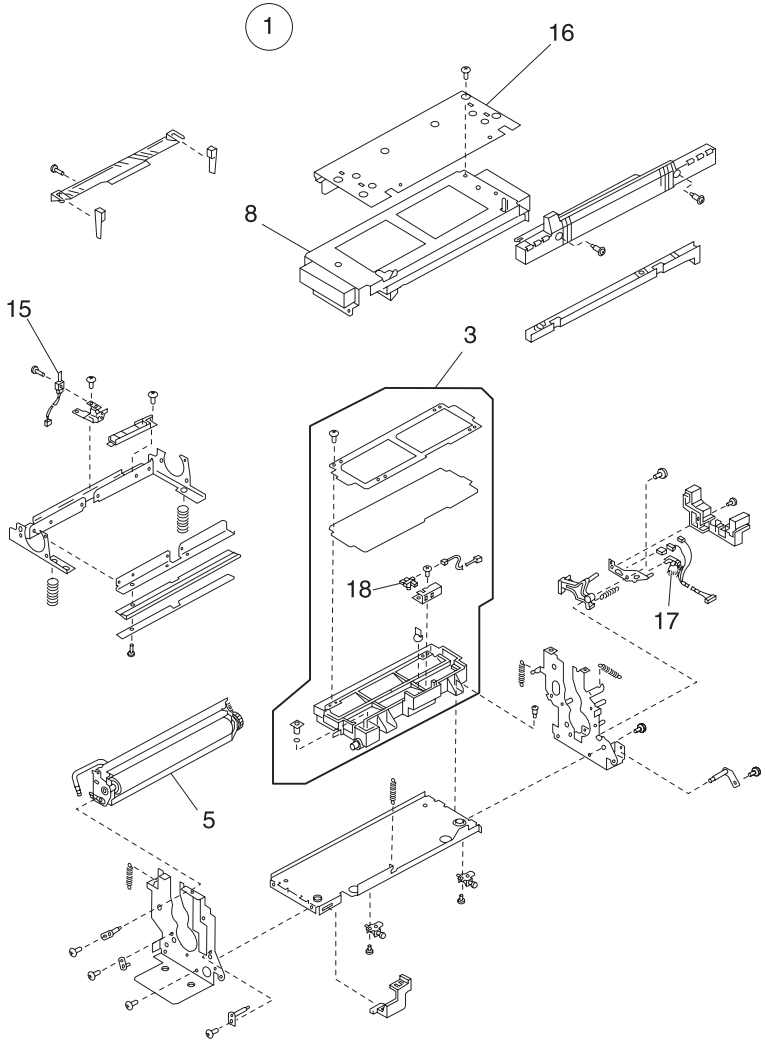
Asm-Index	Part Number	Units	Description
30-1	11A2249	1	Support, Corona
-2	11A2250	1	Link
-3	11A2251	1	Plate Sen/Sep
-4	11A2252	1	Plate, Sensor
-5	11A2253	1	Corona, Separation Asm
-6	11A2254	1	Sensor, Density
-7		1	Spring, PP 11A2364
-8			Screw, PP 11A2340
-9			Screw, PP 11A2331
-10	11A2255	1	Cover
-11	11A2256	1	Cable
-12		1	E-Ring, PP 11A2373
-13		1	E-Ring, PP 11A2373

Assembly 31: Transfer Drum Cleaning



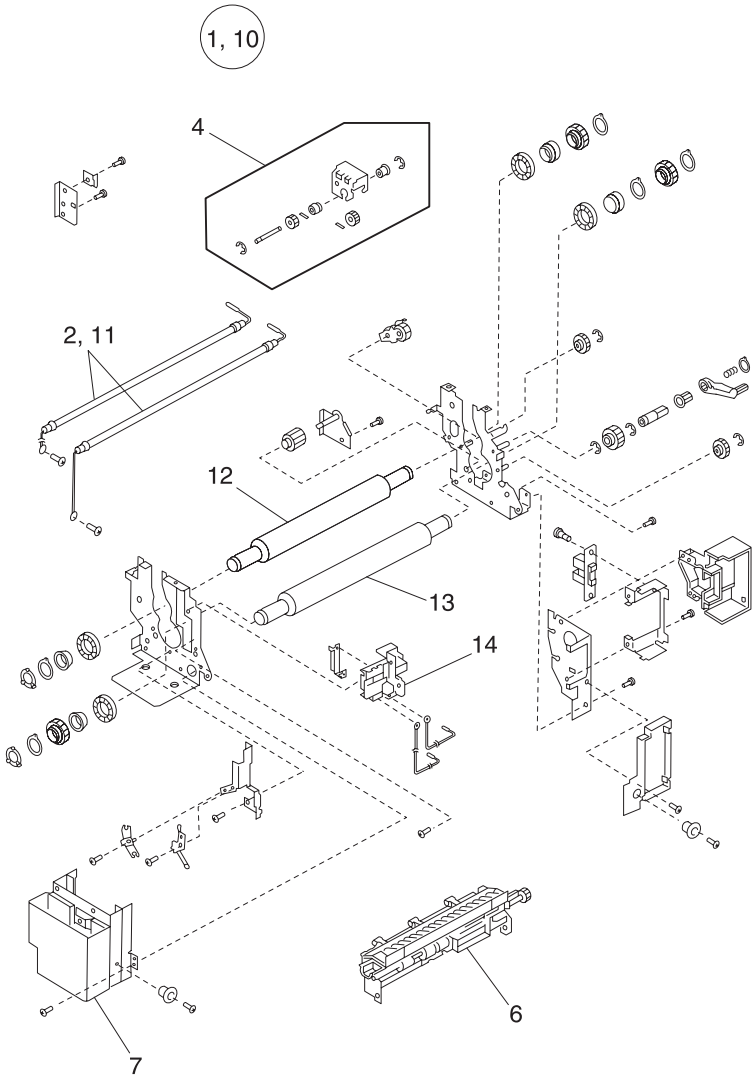
Asm-Index	Part Number	Units	Description
31-1	11A2257	1	Transfer Drum Clean Asm
-2	11A2259	1	•Motor
-3	11A2258	1	•Brush
-4	11A2732	1	•Blade

Assembly 32: Fuser



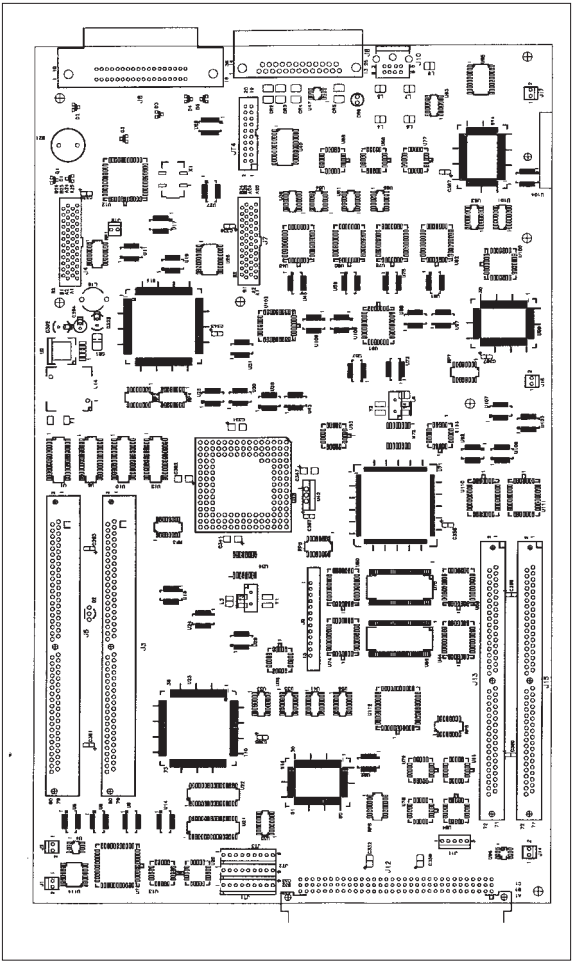
Asm-Index	Part Number	Units	Description
32-1	11A2260	1	Fuser 110 V Asm
-3	11A2267	1	• Oil Tray Asm
-5	11A2270	1	• Fuser Oil Apply Asm
-8	11A2271	1	• Fuser Cleaner Asm
-10	11A2261	1	• Fuser Asm 220 V
-15	11A2266	1	• Thermistor
-16	11A2733	1	• Cover Asm
-17	11A2117	1	• Sensor, Exit
-18	11A2117	1	• Sensor, Oil Full
-NS	11A2455	1	Oil Syringe (Tool)
-NS	11A2456	1	Oil Bottle (Tool)

Assembly 32: Fuser Asm (Cont.)



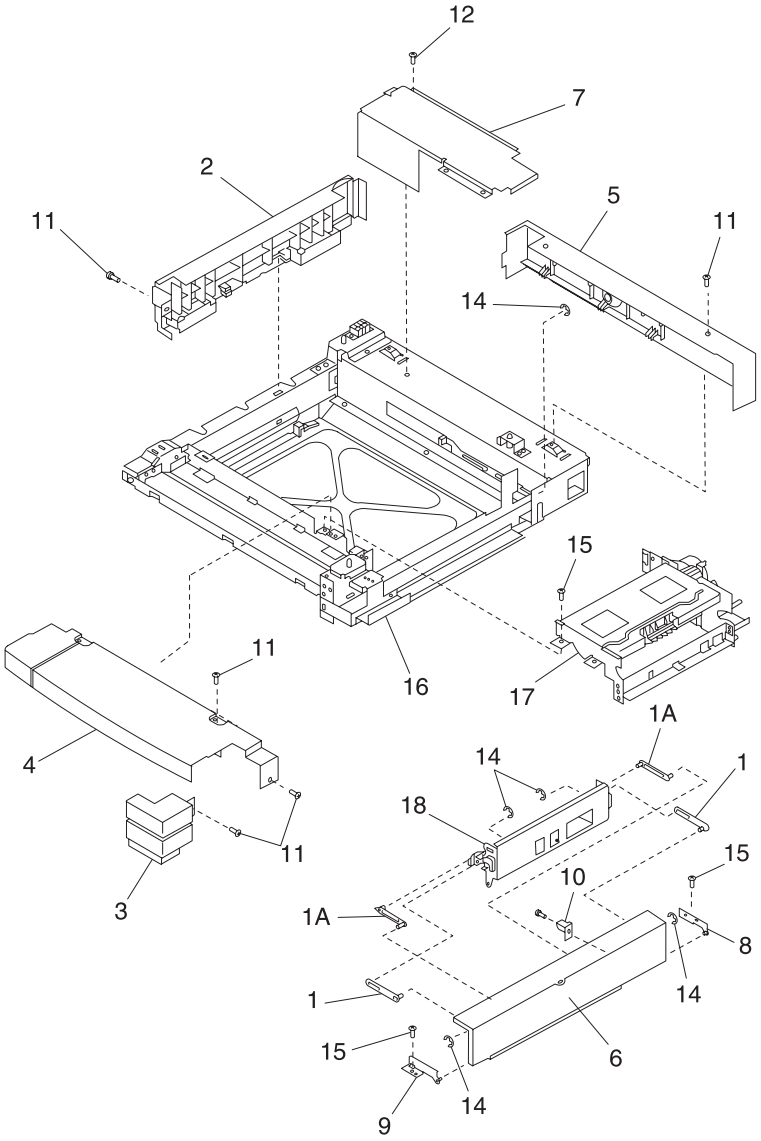
Asm-Index	Part Number	Units	Description
32-1	11A2260	1	Fuser Asm 110 V
-2	11A2268	2	•Lamp 110 V
-4	11A2265	1	•Oil Applying Input Asm
-6	11A2273	1	•Fuser Delivery Asm
-7	11A2274	1	•Oil Bottle Case Asm
-10	11A2261	1	Fuser 220 V Asm
-11	11A2269	2	•Lamp 220 V
-12	11A2262	1	•Roller, Upper
-13	11A2263	1	•Roller, Lower
-14	11A2264	1	•Thermo Switch

Assembly 33: Video Controller Board



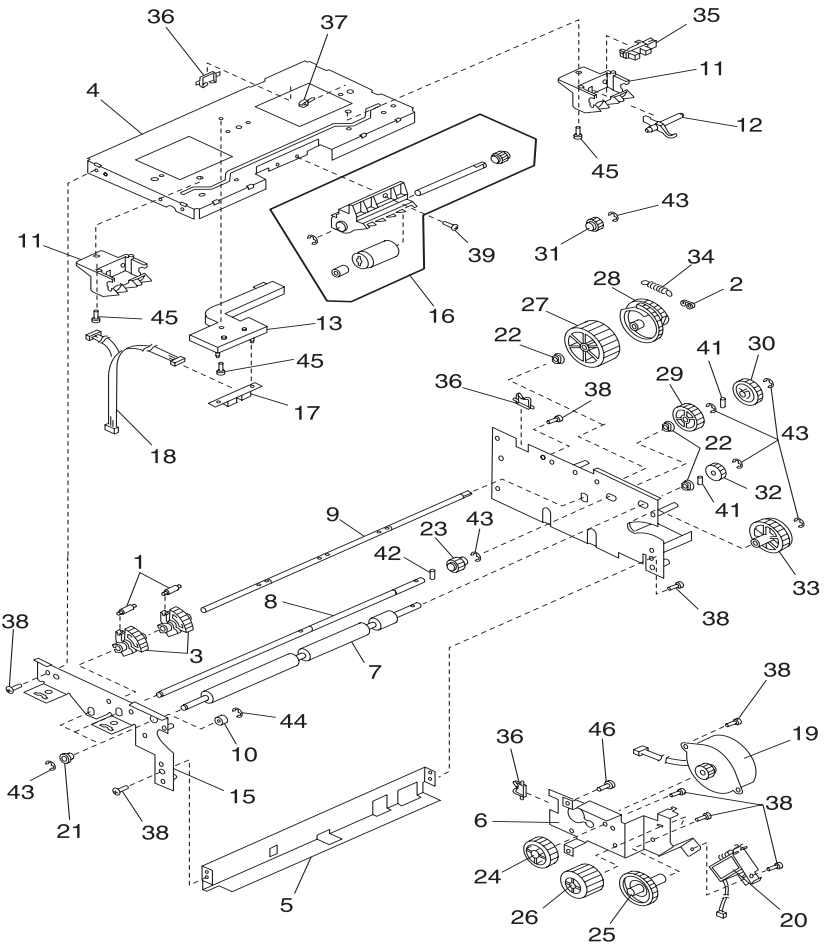
Asm-Index	Part Number	Units	Description
33-1	69G3802	1	Video Controller Board
-NS	69G3790	1	ROM SIMM
-NS	1342514	1	Line Cord (US)
-NS	1342536	1	Line Cord (APG-ARG)
-NS	1342543	1	Line Cord (UK)
-NS	1342530	1	Line Cord (Europe)
-NS	1342537	1	Line Cord (Israel)
-NS	1342533	1	Line Cord (Switzerland)
-NS	1342532	1	Line Cord (South Africa)
-NS	1342534	1	Line Cord (Italy)
-NS	1342535	1	Line Cord (Denmark)

Assembly 34: Optional Paper Feeder (Main Body)



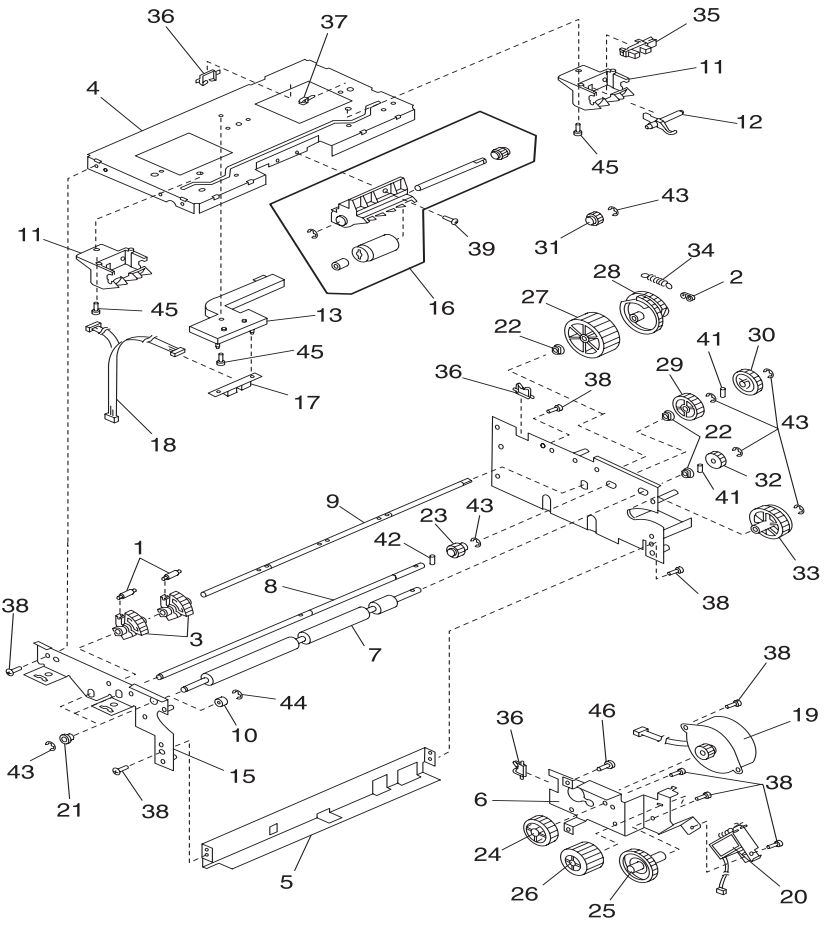
Asm-Index	Part Number	Units	Description
34-1	11A2277	2	Lock Lever Link
-1A	11A2286	2	Link
-2	11A2278	1	Left Cover
-3	11A2279	1	Right Cover
-4	11A2280	1	Front Cover
-5	11A2281	1	Rear Cover
-6	11A2282	1	Cover, Open/Close
-7	11A2283	1	Gear Cover
-8	11A2284	1	Hinge, Cover Right
-9	11A2285	1	Hinge, Cover Left
-10	11A2287	1	Switch Rod Plate
-11			Screw, PP 11A2331
-12			Screw, PP 11A2331
-13			Screw, PP 11A2331
-14		5	E- Ring, PP 11A2373
-15			Screw, PP 11A2331
-16			See “Paper Pickup Asm (Base)” on page 7-80
-17			See “Optional Paper Feeder (Front)” on page 7-76
-18			See “Paper Pickup Asm (Rear)” on page 7-82

Assembly 35: Optional Paper Feeder (Front)



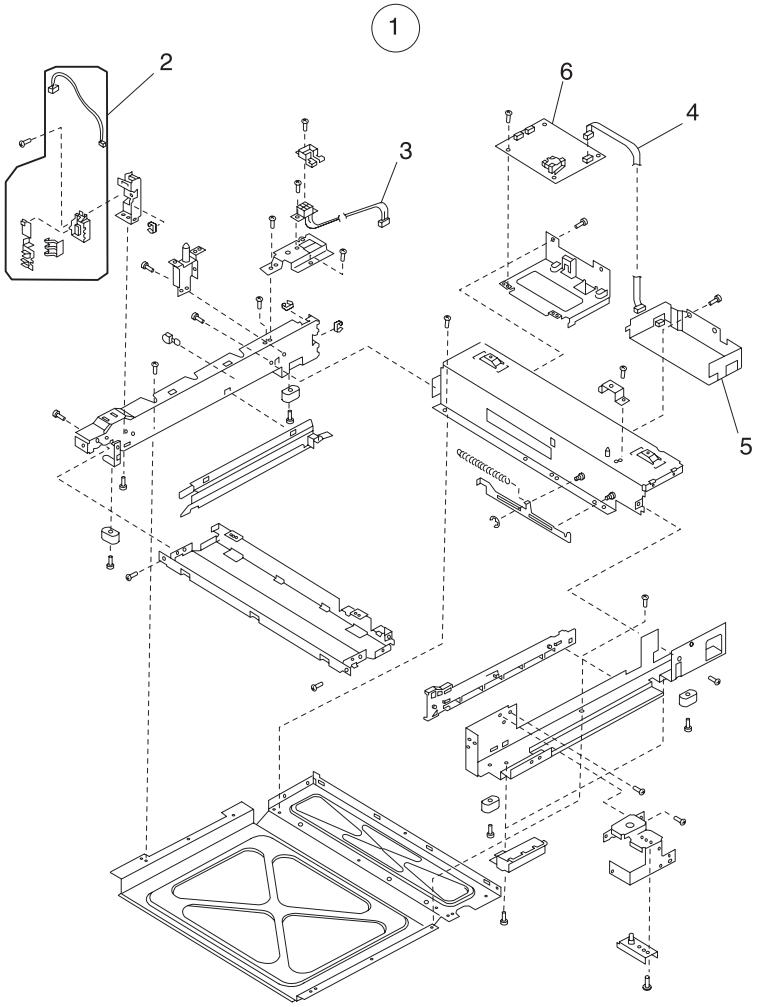
Asm-Index	Part Number	Units	Description
35-1	11A2218	1	Roller Assembly
-2	11A2289	1	Spring Collar
-4	11A2291	1	Plate
-5	11A2292	1	Crossmember
-6	11A2293	1	Motor Mount
-7	11A2294	1	Paper Feed Roller
-8	11A2295	1	Front Drive Roller Shaft
-9	11A2296	1	Pickup Roller Shaft
-10	11A2297	1	Release Roller
-11	11A2298	2	Upper Paper Guide
-12	11A2299	1	Sensor Arm
-13	11A2300	1	Sensor Mount
-14	11A2301	1	Right Pickup Frame
-15	11A2302	1	Left Pickup Frame
-16	11A2303	1	Front Roller Asm
-17	11A2304	1	Photo Sensor PCB
-18	11A2305	1	Photo Sensor Cable
-19	11A2306	1	Motor
-20	11A2307	1	Solenoid
-21		3	Bushing, PP 11A2379
-22		3	Bushing, PP 11A2379

Assembly 35: Optional Paper Feeder (Front)(Cont.)



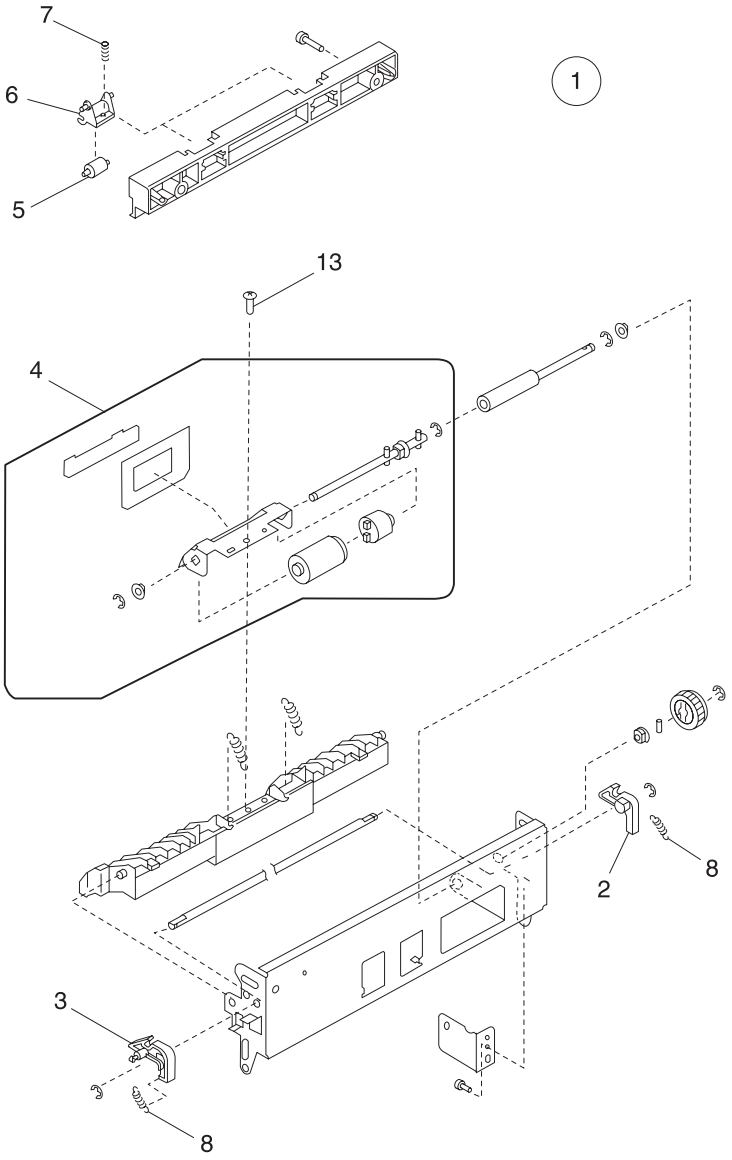
Asm-Index	Part Number	Units	Description
35-23		1	Gear, PP 11A2402
-24		1	Gear, PP 11A2402
-25		1	Gear, PP 11A2402
-26		1	Gear, PP 11A2402
-27		1	Gear, PP 11A2402
-28		1	Gear, PP 11A2402
-29		1	Gear, PP 11A2402
-30		1	Gear, PP 11A2402
-31		1	Gear, PP 11A2402
-32		1	Gear, PP 11A2402
-33		1	Gear, PP 11A2402
-34		1	Spring, PP 11A2364
-35	11A2117	1	IC / TPL1320, Sensor
-36		3	Cable Clip, PP 11A2389
-37		1	Cable Clip, PP 11A2389
-38			Screw, PP 11A2331
-39			Screw, PP 11A2331
-41		2	Dowel Pin, PP 11A2379
-42		1	Dowel Pin, PP 11A2379
-43		7	E- Ring, PP 11A2373
-44		1	E- Ring, PP 11A2373
-45			Screw, PP 11A2331
-46			Screw, PP 11A2340

Assembly 36: Paper Pickup Asm (Base)



Asm-Index	Part Number	Units	Description
36-1	11A2308	1	Paper Pickup Asm Base
-2	11A2309	1	•Cassette Size Sensor Asm
-3	11A2310	1	•Cable
-4	11A2311	1	•Power Supply Cable
-5	11A2312	1	•Power Supply PCB
-6	11A2414	1	•Paper Feed PCB

Assembly 37: Paper Pickup Asm (Rear)



Asm-Index	Part Number	Units	Description
37-1	11A2313	1	Paper Pickup Asm Rear
-2	11A2314	1	•Lock Lever, Right
-3	11A2315	1	•Lock Lever, Left
-4	11A2316	1	•Rear Roller Asm
-5	11A2317	2	•Roller
-6	11A2318	2	•Roller Holder
-7		2	•Spring, PP 11A2364
-8		2	•Latch Spring, PP 11A2364
-13			•Screw, PP 11A2331

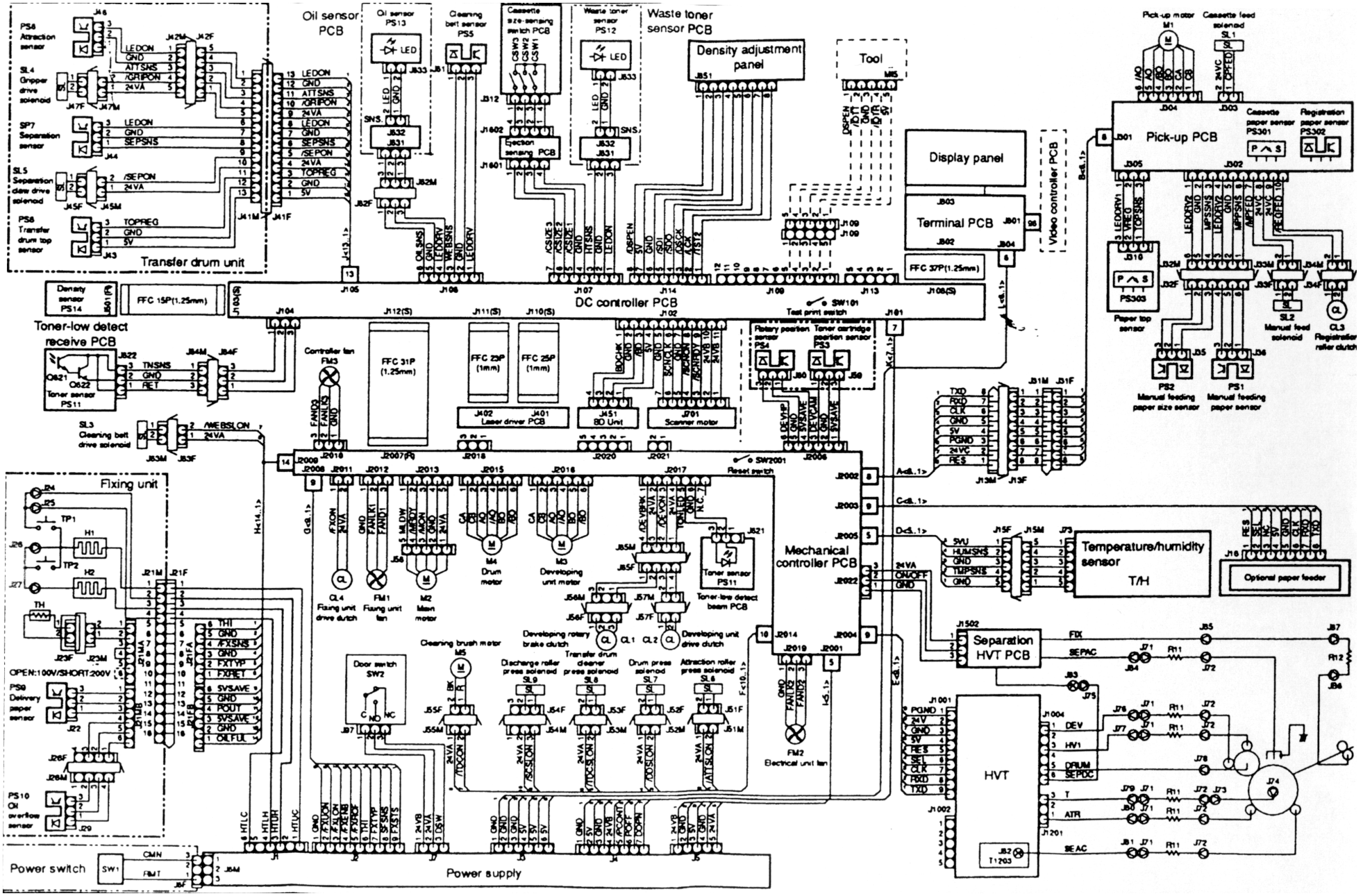
Assembly 38: Options

Asm-Index	Part Number	Units	Description
	1364921		Memory SIMM 2MB
	1364877		Memory SIMM 4MB
	1364876		Memory SIMM 8MB *
	1364875		Memory SIMM 16MB
	1364874		Memory SIMM 32MB
	1364923		Flash Memory 1MB
	1364922		Flash Memory 2MB
	1364879		Flash Memory 4MB
	1364873		Hard Drive 40MB
	1381856		Hard Drive 100M
	1402217		Token-Ring
	1402218		Ethernet 10BASE T
	1446702		Ethernet 10BASE2

* Standard, works in either slot.

Block Wiring Diagram

Attachment to Optra C 5045-001 Service Manual (9/95)



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